

BUSINESS WEEK

INDEX ON PAGE 22

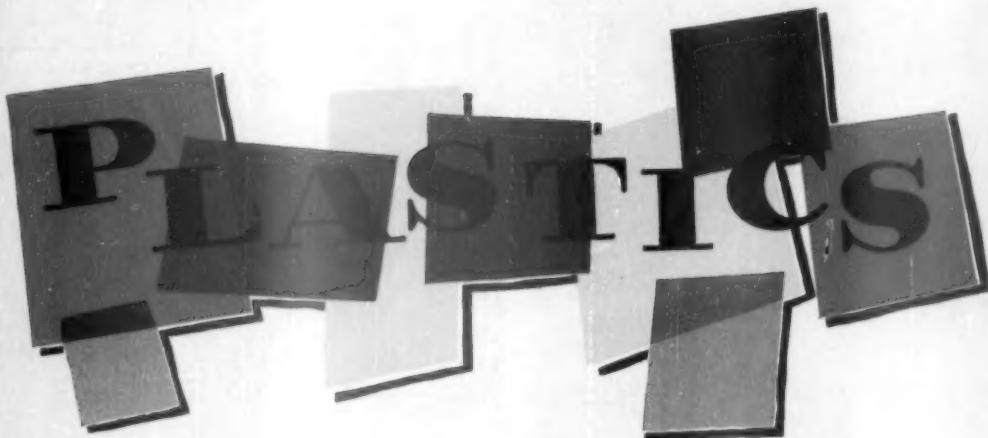
The H-Bomb

WHAT IT REALLY MEANS
PAGE 25

THE SURPRISING FACTS ABOUT



INDEX
YEAR
AGO

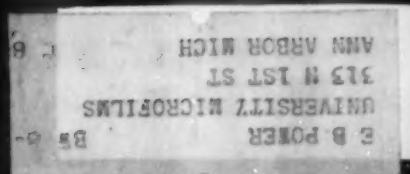


—Newer than you think
—Bigger than you think

SPECIAL REPORT PAGE 100

A MCGRAW-HILL PUBLICATION

APR. 10, 1954



The "Leather" that grows on steel rolls

YEARS TURN INTO MINUTES as this big calender turns out "leather" made with PLIOVIC and replaces the long process of growing and treating pelts and skins.



TOLEX, the "plastic leather cloth," is used to make wear- and weather-resistant jackets and other outer garments. Photos courtesy Textile-leather Corporation.



MATCHING Mother Nature with man-made products can sometimes be a real problem. So it was with leather. The major goal was reduction of time and costs with minimum sacrifice of natural quality. Many attempts were made with varying success.

But new raw materials and new manufacturing techniques have brought the aim ever closer. Today we have simulations that challenge comparison. Among the best of these is new,

fabric-backed plastic sheeting. And this is best made with PLIOVIC — the easy-processing polyvinyl chloride resin.

PLIOVIC is readily turned—through calendering and embossing — into a pliable material having the appearance of smooth-grained, rich-looking "leather." Speed, low cost, long wear, scuff-resistance, weather-resistance, full colors and comfort are some of the advantages. For details, write: Goodyear, Chemical Division, Dept. P-9415, Akron 16, Ohio.

Chemigum, Plibond, Pliolite, Plio-Tuf, Pliovic — T. M.'s
The Goodyear Tire & Rubber Company, Akron, Ohio

Tolex—T.M. Textile-leather Corporation, Toledo, Ohio

Use-Proved Products — CHEMIGUM • PLIBOND • PLIOLITE • PLO-TUF • PLIOVIC • WING-CHEMICALS — The Finest Chemicals for Industry

CHEMICAL
GOOD YEAR
DIVISION

Long Distance QUIZ

"They tell me Long Distance calls are mighty cheap.
How much would you say these calls would be?"

BALTIMORE TO PHILADELPHIA	JACKSONVILLE TO INDIANAPOLIS
CHICAGO TO ST. LOUIS	BOSTON TO SAN FRANCISCO
WASHINGTON TO DETROIT	See answers at bottom of page

We find that most people don't realize how low Long Distance rates really are. So we put on this little telephone quiz to give you some typical rates.

Small in cost, a Long Distance call can mean so much to someone who is dear but distant. Warm, familiar voices melt the miles between—and leave an extra measure of pleasure at each end of the line.

Somewhere today there is someone who would like to hear your voice.

SAVE TIME... CALL BY NUMBER
When you're calling out-of-town, it will speed your call if you give the operator the number you want. It's easier, too.

BELL TELEPHONE SYSTEM

Answers: Baltimore to Philadelphia 40c Chicago to St. Louis 70c Washington to Detroit 85c Jacksonville to Indianapolis \$1.10 Boston to San Francisco \$2

These are the Station-to-Station rates for the first three minutes, after 6 o'clock every night and all day Sunday. They do not include the federal excise tax.

Fast Movers or Shelf Warmers?

**Count BOTH
(and 1,001 Other Items)
WITH
VARY-TALLY**

Multiple-Unit Reset Counter

Vary-Tallies help you separate the sheep from the goats, the big ones from the little ones, the red ones from the green ones — in manufacturing, sales, accounting, researching and what not!

Vary-Tallies will do *any* counting job you want in any combination up to 6 banks high, 12 units wide (with a minimum of 2 units wide). Yes, you can count on 'em or with 'em to *your profit* — note these features of construction:

- Easily Readable from Any Angle . . . Bold figures Always Centered in Window . . . No Glare . . . Figures not Covered by Fingers in Operation
- Easily Portable, yet Ruggedly Built for Long Wear
- All Parts Corrosion-Resistant; Working parts of Hardened Steel
- Separate Counting Units Can be Rotated like Tires on a Car, to Distribute Wear Evenly
- Not Affected by Extreme Heat or Cold
- Individual Tag Above Each Counter-Window — Not Strip Tabs
- Veeder-Root Quality in Every Part

'The Name that
Counts'
®

VEEDER-ROOT INC.

HARTFORD 2, CONNECTICUT

Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C. • Montreal 2, Canada • Dundee, Scotland • Offices and Agents in Principal Cities

BUSINESS WEEK

EDITOR & PUBLISHER Elliott V. Bell
MANAGING EDITOR Edgar A. Grunwald
EXECUTIVE EDITOR Kenneth Kramer

ASSISTANT MANAGING EDITOR Robert B. Colborn
ASSOCIATE MANAGING EDITOR John L. Cobbs
ASSOCIATE MANAGING EDITOR Peter French

DEPARTMENTS

Business Outlook: Clark R. Pace, *Editor*; Robert H. Persons, Jr.
Commodities: Gertrude Charloff, *Editor*
Finance: William McKee Gillingham, *Editor*; Paul D. Gesner, David B. Carlson
Foreign: Howard Whidden, *Editor*; Paul R. Miller, Jr., John R. Thomas
Industrial Production: Charles M. Garvey, *Editor*; George J. Gray, Jr., David C. Allison
Labor: Merlyn S. Pitzele, *Editor*; Edward T. Townsend, Caroline Adams
Management: Richard L. Waddell, *Editor*; Richard M. Wight
Marketing: Carl Rieser, *Editor*; Cora Carter
Personal Business: Guy Shipler, Jr., *Editor*
Regions: Richard M. Machol, *Editor*
Research: John K. Fockler, *Editor*
Illustration: Harry Jensen, Kate McSweeney, *Editors*; Robert Isear (*Pictures-Photography*), Bernard R. Clorman, Herbert F. Kravitz, Jomary Mosley, Arthur Richter
Special Projects: Frank J. Fogarty
Statistics: Elsa Denno
The Trend: M. J. Rossant
Library: Dorothy Roanree, *Librarian*; Emily Cherry, Ruth Callanan
Assistant to the Editor & Publisher: John F. Hartshorne

NEWS EDITORS

T. B. Crane (*Senior News Editor*), Marilyn T. Benjamin, Robert F. Deed, Maxwell D. Gunther, Lawrence H. Odell, Doris I. White

EDITORIAL ASSISTANTS

Mary T. Beckerle, Edward J. Burgess, Jr., Mary M. Burgess, Marguerite G. Cronin, D. A. Drennen, Jean Drummond, Barbara Kleban, Alice Marks

ECONOMICS STAFF

Dexter M. Keezer, *Director*; William H. Chartener, Peter J. Davies, Richard Everett, Douglas Greenwald, Margaret Matulis, Robert P. Ulin

DOMESTIC NEWS SERVICE

Atlanta Bureau: Wm. H. Kearns, *Manager*
Boston Bureau: Paul Finney, *Manager*
Chicago Bureau: James M. Sutherland, *Manager*; Mary B. Stephenson, Dorothy Miller
Cleveland Bureau: Robert E. Cochran, *Manager*; Jean H. Henderson, Wm. N. Troy
Detroit Bureau: William Kroger, *Manager*
Houston Bureau: Eugene Miller, *Manager*; Mary Schiflett
Los Angeles Bureau: Thomas M. Self, *Manager*
Philadelphia Bureau: W. B. Whichard, Jr., *Manager*
Pittsburgh Bureau: Richard N. Larkin, *Manager*
San Francisco Bureau: Richard Lamb, *Manager*; Joanne O'Brien
Washington Bureau: George B. Bryant, Jr., *Manager*; Glen Bayless, Alan E. Adams, Carter Field, Jay Flocken, Boyd France, Sam Justice, Craig Lewis, Donald O. Loomis, Jesse Mock, Gladys Montgomery, Arthur L. Moore, E. William Olcott, Morton A. Reichek, Caroline Robertson, John T. Skelly, Vincent Smith
Correspondents: Akron, Albany, Atlanta, Austin, Baltimore, Birmingham, Boston, Buffalo, Charleston, Charlotte, Cincinnati, Columbus, Dallas, Denver, Des Moines, Duluth, Fort Worth, Greensboro, Hartford, Jacksonville, Kansas City, Knoxville, Little Rock, Memphis, Milwaukee, Minneapolis, New Haven, New Orleans, Oklahoma City, Orono, Phoenix, Portland, (Ore.), Providence, Richmond, Rochester, Salt Lake City, San Antonio, San Diego, Seattle, St. Louis, Syracuse, Toledo, Wilmington, Worcester, Honolulu. **Correspondent Relations:** Dorothea Schmidt

FOREIGN NEWS SERVICE

Editor: Joseph K. Van Denburg, Jr.
Bonn: Gerald W. Schroder
London: Edward W. S. Hull
Manila: Herbert Leopold
Correspondents: Amsterdam, Athens, Bangkok, Beirut, Belgrade, Bogota, Bombay, Brussels, Buenos Aires, Cairo, Caracas, Ciudad Trujillo, Copenhagen, Djakarta, Durban, Geneva, Guatemala City, Havana, Helsinki, Istanbul, Johannesburg, Karachi, La Paz, Lima, Madrid, Melbourne, Oslo, Ottawa, Panama City, Quito, Reykjavik, Rome, Salzburg, San Juan, San Salvador, Santiago, Stockholm, Sydney, Tehran, Tel Aviv, Wellington, Winnipegan

ADVERTISING & BUSINESS MANAGER Herman C. Sturm



BUSINESS WEEK • APR. 10 • NUMBER 1284

(which are combined) **The Annalist** and **The Magazine of Business**) • Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw, President and General Manager; Publication Office, 99-129 North Broadway, Albany, N. Y. • Editorial Executive and Advertising Officer, James H. McGraw, Jr.; Vice-Presidents, Donald C. McGraw, President; William V. Chevalier, Executive Vice-President; Joseph A. Gerard, Vice-President and Treasurer; John J. Scholka, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President, Manufacturing Division; John Bond, Vice-President and Director of Advertising. Subscriptions: Address correspondence regarding subscriptions to J. E. Blackburn, Jr., Vice-

President and Director of Circulation, *Business Week*, 99-129 North Broadway, Albany 1, N. Y., or 320 West 42nd St., New York 36. Allow one month for change of address.

Subscriptions to *Business Week* are solicited only from management-men in business and industry. Postpaid and company connection must be indicated on each order. Single copies \$2.00. Subscription rates—United States and possessions \$16.00 a year; \$12.00 for three years; Canada \$17.00 a year; \$13.00 for three years. Other Western Hemisphere countries \$18.00 a year; \$30.00 for three years. All other countries \$28.00 a year; \$48.00 for three years. Entered as second class matter Dec. 4, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1893. Printed in U. S. A. Copyright 1954 by McGraw-Hill Publishing Co., Inc.—All rights reserved.



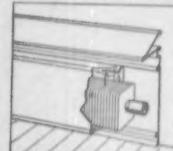
Webster Baseboard Heating eliminated unsightly radiators and made possible the large picture windows in this Northwest Pacific home.

NEW BEAUTY

New Heating Comfort

Tru-Perimeter Forced Hot Water
Webster Baseboard Heating adds
new beauty and new heating
comfort to well-established homes.

In 1946, Webster pioneered radiant-conveeted Tru-Perimeter Heating with Webster Baseboard. Since then, thousands of home-owners have replaced old-fashioned radiators or hot air ducts with trim, unobtrusive Webster Baseboard Heating . . . found new freedom in room decoration, new draft-free comfort in every room.



Cut-away view of Webster Tru-Perimeter Forced Hot Water Baseboard Heating. Note its simplicity.

Your architect or heating contractor knows the advantages of Webster Baseboard Heating. Ask him about it, or write for folder, "Wonderful Webster Baseboard Heating".

Address Dept. BW-4

WARREN WEBSTER & CO.
 Camden 5, N.J. Representatives in Principal Cities
 In Canada, Darling Brothers, Limited, Montreal

Webster
 TRU-PERIMETER FORCED HOT WATER
 BASEBOARD HEATING



Webster Heating Equipment includes Webster Wallvector also used in Tru-Perimeter Heating; Convector; Steam Heating Specialties for heating and process applications; Webster Moderator Systems of Steam Heating and continuous flow controls for hot water heating — both with outdoor thermostat; Unit Heaters.

Look What's Happening In



Metals

THE MOST FABULOUS SUPPLY OF ELECTRIC POWER IN THE WORLD FLOWS TO U. S. HOMES, FARMS, AND FACTORIES . . . AND TO HELP CARRY THE LOAD, ANACONDA MAKES A COMPLETE LINE OF WIRE AND CABLE

Last year our homes, farms and factories soaked up nearly *400 billion* kilowatt-hours of current.

That's twice as much as 10 years ago.

You can easily see how big America has grown—electrically.

Wire is the *power* highway through which this enormous energy flows. And for every step of the way there has been an Anaconda wire and cable. Some are copper. Some are Copperweld®. Some are aluminum.

From seven strategically located mills of the Anaconda Wire & Cable Company, the electrical industry has been able to shop for its many wire needs...from hair-thin magnet wire to fist-thick power cables.

But the job of making wire and cable takes more than *plants* and *people*.

It takes years of experience with metal. For the heart of wire is always metal.

It takes continuing research. For the demands on wire grow greater every year.

As industry's needs become more exacting, it takes a painstaking system of quality control to safeguard uniformity.

Behind every foot of Anaconda wire and cable stands a *fully integrated* business, modern in its methods and equipment. It links the resources of many mines and plants. That's why Anaconda and its subsidiaries are able to serve you so well with such a wide diversity of products.

©1954

ANACONDA®

PRODUCERS OF: Copper, zinc, lead, silver, gold, platinum, cadmium, vanadium, selenium, uranium oxide, manganese ore, ferromanganese and superphosphate.

MANUFACTURERS OF: Electrical wires and cables, copper, brass, bronze and other copper alloys in such forms as sheet, plate, tube, pipe, rod, wire, forgings, stampings, extrusions, flexible metal hose and tubing.

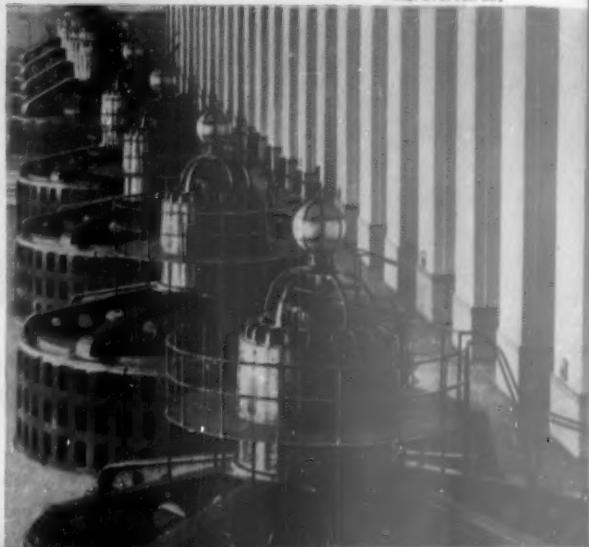
PATROLS REGULARLY CHECK every mile of transmission line for America's light and power companies—on foot . . . in jeeps . . . in boats . . . and, fastest of all, in helicopters that hover a few feet over the cables. For these are the nerves of a nation, sometimes copper and, where they must be light in weight, sometimes aluminum. Anaconda supplies both types of cables to the nation's leading electric companies.



HUNGRY HORSE DAM will supply the power for Anaconda's new aluminum reduction plant now being built at Columbia Falls, Montana. Every ton of finished metal will take some 18,000 kilowatt-hours of current. Production starts late in 1954. Then 52,000 tons a year will help supply the growing market for this lightweight metal.

WHAT DO YOU NEED TO MAKE ELECTRICITY? A source of power, of course. This may be fuel or flowing water. Next—turbines and generators must convert this power into usable electricity. For many years The American Brass Company, an Anaconda subsidiary, has supplied corrosion-resistant parts for these turbines and generators, tubes for steam condensers, bus conductors for switchgear, and Everdur® Electrical Conduit to protect wires and cables against corrosion and physical damage.

©1954 U. S. Pat. Off.





As one of the great carriers of merchandise freight, the C&O sponsors this campaign in the belief that a better understanding of the Traffic Manager's job will contribute to the better and more economical movement of material.

"When you call me a cow, smile!"

**The story of a Traffic Manager who couldn't
see any difference between horses and cattle**

If you were shipping a lot of horses, how would you waybill them? As horses? This man didn't. He had imagination.

His company made dog food. One of the principal ingredients was horse meat. Because horses are ordinarily shipped in small numbers and require special handling they normally take a fairly high freight rate. But horses for slaughter can be loaded to car capacity and handled just like slaughter cattle, so it seemed to this alert traffic manager that they should take the same rate.

Digging into the subject, he found that in certain tariff districts horses for slaughter actually did go

at the fat-cattle rate. He made a thorough study of relevant Interstate Commerce Commission decisions. Carefully preparing his case, he presented it to the proper authorities in his district and won acceptance of his point. Today this manufacturer's large shipments of horses travel at an 18% lower cost. And that ain't hay!

The Traffic Manager, like any other executive, grows in stature and usefulness as his field of vision reaches out beyond the four walls of his own office. Through constant study, through frequent contacts with others in his profession, he is always opening doors to more efficient, economical transportation.

**Chesapeake and Ohio
Railway**

MEMBER OF FEDERATION FOR RAILWAY PROGRESS

TERMINAL TOWER, CLEVELAND 1, OHIO

READERS REPORT

Carrying the Load

Dear Sir:

The . . . Report to Executives on Transportation [BW—Mar. 20 '54, p102] is of considerable interest. . . . I believe [it] to be the best presentation on this subject I have ever read. . . .

D. M. STEINER

SILVER SPRING, MD.

Dear Sir:

. . . We found this to be a very informative and thought-provoking article.

JAMES W. LEE

TRAFFIC MANAGER

BENDIX AVIATION CORP.

KANSAS CITY DIVISION

KANSAS CITY, MO.

Dear Sir:

We want to congratulate you on the very excellent report on transportation which appeared in the Mar. 20 issue. . . .

GEORGE C. FRANK

ASSISTANT TO PRESIDENT

ERIE RAILROAD CO.

CLEVELAND, OHIO

Dear Sir:

. . . We feel that this is one of the finest articles on transportation which we have read in recent years, and we are anxious to secure additional copies for our executives. . . .

J. G. ROBISON

GENERAL TRAFFIC MANAGER

PENNSYLVANIA SALT MANUFACTURING CO.

PHILADELPHIA, PA.

Dear Sir:

I read with great interest . . . the report on transportation.

As the rate structure is boosted by percentage increases, the spread between LCL and CL rates, or LTL and TL rates, becomes greater and greater.

Many shippers who have volume movements of LCL shipments find it more economical to make up pool carloads or pool truckloads. They consign a whole load of miscellaneous deliveries to one geographical market, such as New York Metropolitan area, to a pool distributor such as ourselves. We perform the deliveries for the account of the shipper. The railroad or truck line gets a load with one delivery which they prefer. The shipper saves in freight charges the difference between LCL and CL plus distribution, which can be substantial.

It is even possible in many cases to

ELECTRICAL CORDS KEEP APPLIANCES IN SERVICE



You profit through extra savings when you specify Belden Electrical Cords.

Trained operators and special equipment build Belden complete cords to the exact specifications of your product.

Ready to attach—they eliminate time-consuming assembly operations, minimize production-line rejects, and keep your product in service longer.

Save Time, Save Money

Specify Belden

Belden Manufacturing Co.
4689-A W. Van Buren St., Chicago 44, Ill.

MANUFACTURERS WHOSE PRODUCTS SERVE BEST.

Specify

Belden

WIREMAKER FOR INDUSTRY

New Laboratory

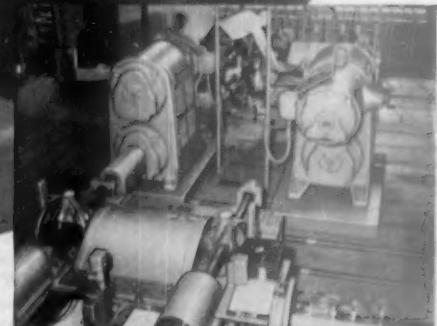


for New Departure

Firebird . . . hottest thing on wheels . . . GM laboratory on wheels! It's America's first experiment in gas turbine power for automobiles. And to New Departure, Firebird is another research lab for testing new ball bearing applications. For the New Departures in the Firebird must operate under very unusual conditions—yet perform as faultlessly as the New Departure ball bearings in present cars.

Through continuing research, New Departure keeps pace with industry's new products and new methods. It is one of many reasons why—tomorrow as today—you can look to New Departure for the *finest* in ball bearings.

Call on your New Departure sales engineer for application assistance when improving a product or designing a new one.



Automotive test setup in New Departure laboratories. New Departure research has pioneered many "firsts," such as the lubricated-for-life pump shaft and rear wheel ball bearings.

NOTHING ROLLS LIKE A BALL



NEW DEPARTURE
BALL BEARINGS

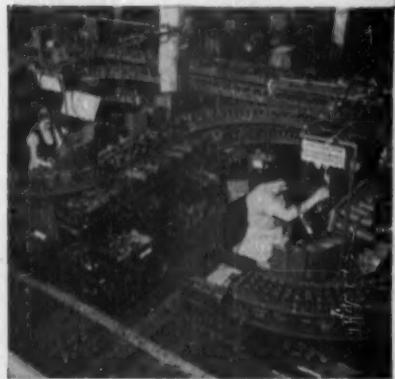
NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT
Plants also in Meriden, Connecticut, and Goshen, Ohio.
In Canada: McKinnon Industries Ltd., St. Catharines, Ontario.



HANDLING COSTS CUT WITH CONVEYOR Youngstown Alloy Casting Corporation uses Rapistan gravity wheel conveyors to expedite movement of molds from forming, through drying oven to assembling and on to pouring floor. Further savings are effected by spraying and assembling molds while still on the conveyor, which then passes through drying oven at 600° F. Conveyors had been cutting costs for seven years when picture was taken.

Free *Rapistan* field reports tell Profit Stories like these

MACHINE OUTPUT INCREASED Utica Drop Forge & Tool Company increases operator's productive hours with this Rapistan "LP" cleated belt conveyor. Forgings are automatically elevated from trim press and deposited in sloping bottom bin for delivery to next operation. Operator does no handling; is freed for full time production. Rapistan cleated belt conveyors are available in light, medium and heavy-duty models.



ASSEMBLY OPERATIONS STREAMLINED Magnetic starter assemblies in tote pans flow smoothly from one work point to the next on Rapistan RW gravity wheel conveyor lines in this large midwestern plant. Operators receive pans from one conveyor line and pass them along on another, keeping work space uncluttered and increasing output. Lines are "pitched" just enough to move pans at speed desired.

Gain from this experience

Send today for fact-filled reports on handling problems in your field. Describe your type of business and handling situations of interest to you. We'll send Field Reports telling how other firms solved similar problems.

The RAPIDS-STANDARD COMPANY, Inc.
177 Rapistan Building • Grand Rapids 2, Michigan



Rapistan®
CONVEYORS, gravity and power belt • INDUSTRIAL CASTERS • WHEEL-EZY® TRUCKS

Representatives in all Principal Cities Throughout the World

ship to warehouse in carload or truck-load lots, store and distribute locally, for less than the LCL or LTL rates. The manufacturer is able to neutralize local competition by having his stock already in the area available for immediate delivery—and he can still save on his LCL or LTL freight charges.

J. J. SCHAEFER

PRESIDENT

SENTINEL DISTRIBUTION CORP.
JERSEY CITY, N. J.

Dear Sir:

The article . . . was well-prepared and exemplified, but I wonder why [it] did not mention the approximate or actual cost to the taxpayers in providing highways for the intercity trucks, air lanes and terminals for the planes, and channels for the barge lines, and the amount paid by those carriers, in taxes, as compared to the tax bill of the railroads who maintain their own right of way with no assistance from the taxpayers.

It appears to me that the taxpayers and not the trucks, planes or barges, have been and will continue to carry the load until the time that our government will impartially investigate the transportation industry and require each mode to pay its own way. . . .

L. W. HEIST

CINCINNATI, OHIO

Statistical Programs

Dear Sir:

Your . . . article on government statistics [BW—Mar. 13 '54, p113] . . . impressed me as a splendid example of alert business journalism. . . .

Naturally, I was pleased to note that your story had been provoked by the recent report of the Intensive Review Committee to the Secretary of Commerce on Census programs. You have directed attention to the report in a very intelligent way, and I am sure . . . [the article] will be widely influential in forcing businessmen to give some thought to what is at stake in our neglect of fundamental statistical programs.

RALPH J. WATKINS

DIRECTOR OF RESEARCH
DUN & BRADSTREET, INC.
THE MERCANTILE AGENCY
NEW YORK, N. Y.

Beer and Baseball

Dear Sir:

As an avid reader of your publication and a booster of both the St. Louis Cardinals and Anheuser-Busch, Inc., I wish to call your attention to . . . your



TIME IS CANCER'S GREATEST ALLY...

ALL TOO OFTEN, a person who notices a symptom that could mean cancer delays seeing his doctor. In so doing, he allows cancer's greatest ally . . . time . . . to reduce the chances for cure or control.

You can easily see why time favors cancer when you consider the nature of this disease. It usually develops in just one place and as long as it remains localized, complete cure is possible by surgery, X-ray, radium and certain other radioactive substances.

If treatment is delayed, however, cancer can spread to many parts of the body and become incurable. This is why early detection of cancer is so important. While pain is not usually an early symptom of cancer, there are certain symptoms by which the commonest kinds of cancer can be diagnosed early. These warning signs are:

1. Any sore that does not heal.
2. A lump or thickening in the breast or elsewhere.
3. Unusual bleeding or discharge.
4. Any change in a wart or mole.
5. Persistent indigestion or difficulty in swallowing.
6. Persistent hoarseness or cough.
7. Any change in normal bowel habits.

These danger signals do not mean that a person necessarily has cancer. Indeed, many people who suspect they have the disease find, upon examination, that they do *not* have cancer. However, the danger signals do indicate that something is wrong, which you should have checked by your doctor.

Being on the alert for cancer's warning signs is your responsibility in the drive for

early cancer detection. In fact, the American Cancer Society has estimated that early cancer treatment saves the lives of 70,000 people in our country each year—and another 70,000 could be saved if more people were aware of the danger signals of cancer.

Unfortunately, cancer often develops silently without noticeable symptoms. Here too, there is a safeguard—periodic medical examinations. These are particularly important for all men and women who have reached the ages of 40 and 35 respectively. The value of these examinations is underscored by the fact that half of all cancers occur in body sites that the doctor can readily examine.

You can deprive cancer of its greatest ally simply by acting promptly, should any of its warnings occur.

COPYRIGHT 1954—METROPOLITAN LIFE INSURANCE COMPANY

Metropolitan Life Insurance Company
(A MUTUAL COMPANY)

1 Madison Avenue, New York 10, N. Y.



Metropolitan Life Insurance Co.
1 Madison Ave., New York 10, N. Y.

Please send me a copy of your booklet, 454-S, "Cancer."

Name _____

Street _____

City _____ State _____



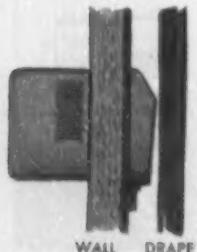


COOLS OR HEATS and "HIDES AWAY"

Drapery and curtains and even blinds close smoothly over this new "hide-away" Air Conditioner of Admiral's. Yet how it does pour coolness into a room when you turn the switch!

But not just coolness. When frosty weather calls for it, reverse the cycle and this versatile little unit will heat any room it will cool. Bulk is gone. Unsightly extension into the room is gone. Amazing air conditioning action remains.

Dial it in to suit your personal comfort—18 different weather selections, plus humidity control and air filtration. Installation, just a matter of minutes—fits flush with window, uses "clear view" side window fillers that permit light to enter. See it in action now at your Admiral dealer's.



Admiral

ROOM AIR CONDITIONER

article on page 48 of the Feb. 27 issue . . . on my two favorite subjects.

First . . . the picture heading the article is obviously a year old, as the names over the lockers in the background included "Hal Rice," who was traded to Pittsburgh last June. Secondly, the name of our renovated ball park is Busch Stadium and not Busch Park. Thirdly, Michelob is not the only draught beer sold by Anheuser-Busch, as Budweiser on draught is mighty smooth drinking. . . .

I still enjoy reading BUSINESS WEEK immensely.

PAUL H. KUMMER
PAUL E. KUMMER REALTY CO.
ST. LOUIS, MO.

• We chose the picture because it seemed to show Busch's enthusiasm for the Cardinals better than any more recent one.

Ividently!

Dear Sir:

Did BW get educated at Harvard to caption thus—College Indowments Changed, on page 64 of the Mar. 27 issue?

F. D. KING
VICE-PRESIDENT & GENERAL MANAGER
RAILWAYS ICE & SERVICE CO.
CHICAGO, ILL.

No Tie-Up

Dear Sir:

Your Feb. 6 issue carried a Production Brief (on page 134) stating that "railroad cars are being used as warehouses at one of General Motors' Boston assembly plants. . . ."

The story was entirely incorrect. The Buick-Oldsmobile-Pontiac Assembly Division of General Motors, which has a plant at Framingham, Mass., has warehouse facilities there and keeps its demurrage at an irreducible minimum. This is equally true of all plants of General Motors, which would not consider tying up railroad cars beyond normal loading and unloading periods. GM does not do business that way.

V. B. THORNE, JR.
GENERAL MOTORS CORP.
NEW YORK, N. Y.

• Correct. Somebody misunderstood when he saw cars on a siding.

Letters should be addressed to Readers Report Editor, BUSINESS WEEK, 330 West 42nd Street, New York 36, N. Y.

"THE STEEL YOU CAN'T BUY FROM INLAND"



Every year Inland takes tons of steel out of circulation for test purposes. From mines to finishing mills, our quality control men are scrutinizing test samples taken at every stage of steel refining and rolling . . . punching, pulling, twisting, etching, photographing, probing to determine if the steel you ordered is up to par.



INLAND STEEL COMPANY
38 South Dearborn St. • Chicago 3, Illinois

Sales Offices: Chicago • Milwaukee •
St. Paul • Davenport • St. Louis • Kansas
City • Indianapolis • Detroit • New York

Principal Products: Sheets • Strip • Plates
• Structural Shapes • Bars • Tin Mill
Products • Rails and Track Accessories •
Coal Chemicals





You keep girls happy on the job...

You keep accounting work up-to-date...when you put the all-purpose low-cost Underwood Sundstrand Model E Accounting Machine to work!

A mechanical brain does most of the work... directs all the automatic operations. Speeds output! Minimizes errors! Saves time, money, and effort.

A cinch to operate...ask anyone who uses the Model E! For the famous touch-operated Sundstrand 10-key keyboard gives that much-wanted relief from fatigue!

Any size business organization can profitably use the Model E because it posts such a variety

of records, does *all kinds* of miscellaneous figure work.

Whether your Company is large or small, Underwood has just the right accounting machine for every purpose...for every purse.

Before you buy **any** accounting machine, see the Model E in action on your own work...and keep girls happy on the job. Ask an Underwood Accounting Machine representative to arrange for your demonstration...without obligation.

Insist on Underwood Sundstrand Accounting Machines...the *simplest, fastest, most automatic, easiest to operate!*

Underwood Corporation BW-4-10-54

One Park Avenue, New York 16, N. Y.

Please send literature, further describing your new Underwood Sundstrand Model E Machine.

I would like to have a demonstration.

Name _____

Start **End**

City _____ **State** _____

西漢 4-50-54

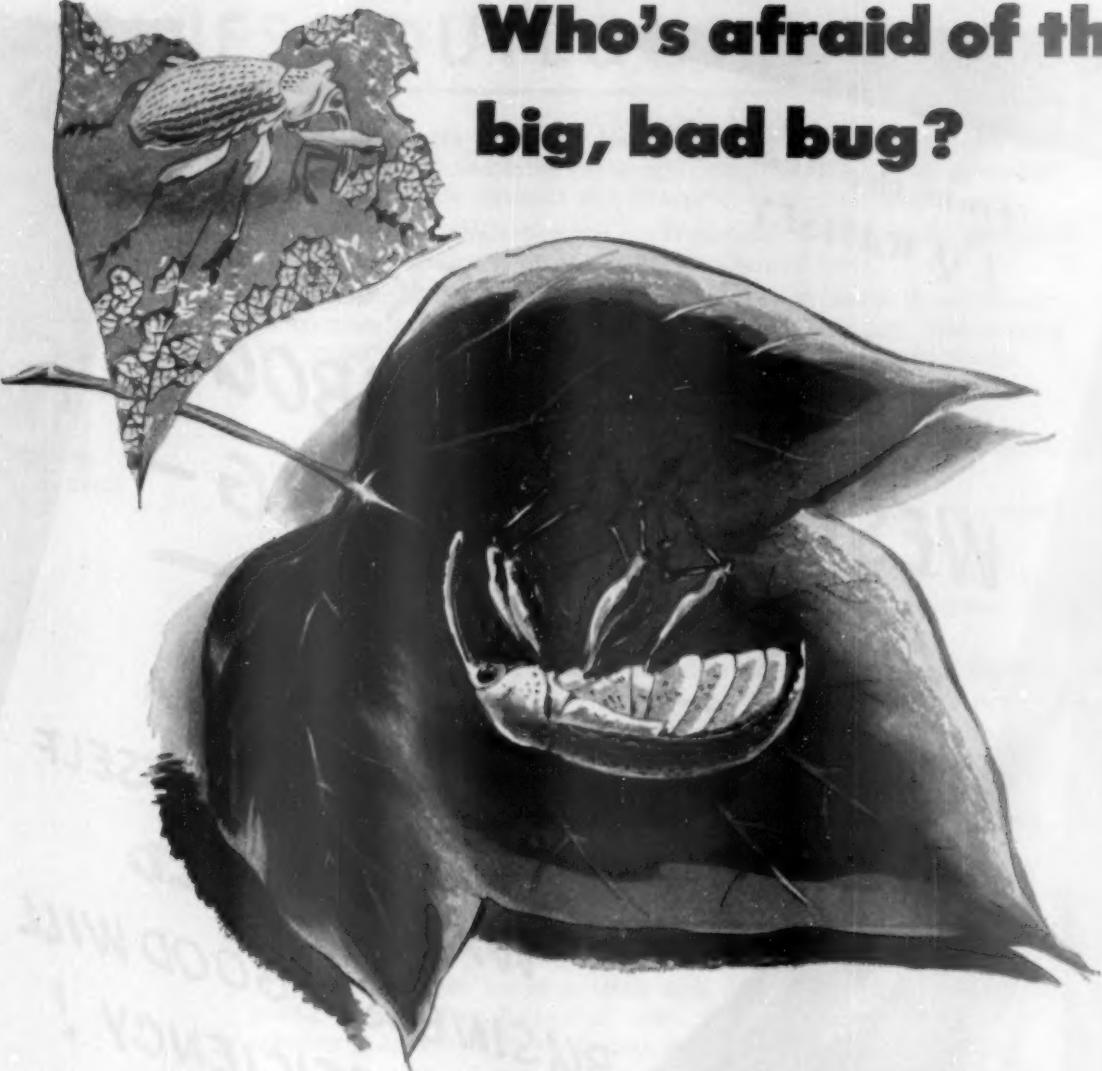


Underwood Corporation

Accounting Machines...Adding Machines... Typewriters...Carbon Paper...Ribbons

**One Park Avenue,
New York 16, N. Y.**

Sales and Service Everywhere



Who's afraid of the big, bad bug?

That's the way we like to see *anthonomus grandis*—flat on his back. Better known as the boll weevil, he ruined millions of dollars worth of cotton fields in his heyday. He and scores of his winged and multi-legged partners in crime are steadily becoming as extinct as the dinosaur, as farmers attack them with potent chemical weapons. The war against the boll weevil has already boosted cotton yield from one bale to four bales per acre.

Most pesticides don't mix with water. Atlas helps solve this problem, by supplying manufacturers of farm chemicals with Atlox® emulsifiers. These change insoluble bug-killing toxicants into concentrates that the farmer easily mixes into water for spraying.

Working in close cooperation with many different industries, Atlas research has developed hundreds of ways to make things better and more economical . . . through the use of Atlas sorbitol, emulsifiers, detergents, polyester resins, paints and explosives. Atlas Powder Company, Wilmington 99, Delaware.



ATLAS
POWDER COMPANY

From the desk of:
J. Q. RAMSEY

SEE MAN FROM
WESTINGHOUSE ABOUT
AIR CONDITIONING —

REMIND J.W. THAT IT'S A
PRACTICAL, PAYS-FOR-ITSELF
WAY TO BUILD
BUSINESS - GOOD WILL
— EFFICIENCY !

WESTINGHOUSE AIR CONDITIONING

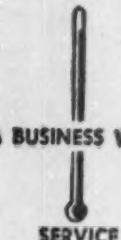
— YOU CAN BE SURE ... IF IT'S Westinghouse —

J-80391

BUSINESS OUTLOOK

BUSINESS WEEK

APR. 10, 1954



Flash reports on March business can be interpreted a trifle more favorably than those for the last several months (which is in happy contrast with slightly stale statistics still straggling in for February).

Draw what satisfaction you can from this. But be careful not to fall into the pitfalls that are trapping the prophets of boom.

Remember that March should automatically be better than February. It has more working days, and it benefits from the weather. Thus some of the "gains" people talk about actually fall short of normal expectancy.

March employment figures look pretty good—viewed casually (page 28.)

The rosy side: There were more jobs last month. The gain wasn't large, of course, but it at least was a turn for the better.

Not so rosy: Employment's rise of 50,000 in March this year pales beside the gain of 500,000 last year. Worse still, nonfarm employment fell 125,000 whereas it had risen nearly 200,000 a year earlier.

Unemployment, too, has its yes-and-no aspects. The Census Bureau's new set of figures lists the rise at less than 50,000 in March—inconsequential after the climb in January and February.

Yet the small rise this year contrasts with a decline of 114,000 a year earlier. And the 3.7-million total is about double last year's figure.

How much joblessness do you have to have before unemployment should be called "substantial?" The present rule of thumb is 6% (adopted in June 1951, because it was double the national average at that time).

On that yardstick, we have 31 major areas and 53 smaller ones in the United States that fall into the Labor Dept.'s group IV category.

This, of course, lumps in cities with 6% unemployment with those having three or four times that much. Hence the agitation for a fifth category to split them up—and make group IV status sound less bad.

But it's dubious politics; smells of statistical skulduggery.

—•—

Value of construction work done in the first quarter of 1954 made an excellent showing. The \$7,280-million total tops even last year's record first quarter (\$7,175-million) and is at a seasonally adjusted annual rate of a little over \$36-billion.

Put the construction figures under the microscope, though, and their vitamin count isn't quite so high.

Examine the rate of gain over a year ago. March set a new high for the month—but topped a year ago by only a hair.

February had been 1.8% ahead of the year-earlier level. January's margin had been 2.7%. December had a gain of 4.4%. And as recently as last August, the spread had been 6½%.

Uncle Sam's economizing is mainly accountable for the failure of the construction figures to maintain earlier rates of gain.

Federal construction outlays in the first quarter of 1954 ran 17% below a year ago. This more than canceled out an 8% gain for states and local governments, pulling the public works total 4% behind 1953.

But the rate of gain also has been dwindling on the private side.

BUSINESS OUTLOOK (Continued)

BUSINESS WEEK

APR. 10, 1954

Private commercial, industrial, residential, and the like ran only 2% ahead in March. This category had been up 4.4% in February, 5.3% in January, and 6.3% last December.

Dwindling margins of gain could indicate that future construction will fall behind last year—and perhaps by widening percentages.

However, the latest F. W. Dodge Corp. survey hardly bears that out. Its preliminary tabulation of contract awards in 37 eastern states puts the March count "far and away" the highest ever recorded for the month.

The first quarter, too, set a record for the period, says Dodge.

Work done on private residences, the largest single factor in the value of all construction put in place, is estimated at \$854-million for March—almost exactly the same as last year. This, too, culminates several months of dwindling gains over a year earlier.

But you could see it coming. The number of new homes started has been lagging behind year-earlier levels ever since mid-1954. Value couldn't stay ahead forever—even though cost may average higher.

—•—

Either consumers take a dim view of going further into debt or lenders are tougher on applications for loans (or both).

That's the emphatic story told by the consumer credit figures.

Disregard charge accounts. People always charge a lot of goods before Christmas, then pay off after the turn of the year. But this year there has been a substantial payoff on installment loans, too.

This time-payment debt dropped more than \$600-million in the first two months of this year. Even in credit-regulated 1952, the dip was only a fraction of that, and last year the total rose about \$200-million.

Slower auto sales have a lot to do with the decline in installment debt this year against the rise early in 1953.

Here you run into a hen-and-egg problem: Do most of the people who want new cars already have them, or is the market shrinking because the potential buyers can't or won't mortgage future incomes on a time-sale?

—•—

There is room to hope that customers, in the aggregate, earned a little more money in March than in other recent months.

For one thing, there was the slight rise over February employment. That, however, may not have been entirely velvet. You have to remember that farm employment was up and nonfarm down; there you probably had lower rates in the rural jobs opening up than in the city jobs lost.

As to hours worked, there has been less talk about short work weeks recently. That may have steadied factory payrolls.

Personal income, from a high of \$287.5-billion last July (seasonally adjusted annual rates), had dipped to \$282.9-billion in February. That undoubtedly is one of the factors in the consumer's caution.

Copyrighted under the general copyright on the Apr. 10, 1954, issue—Business Week, 300 W. 42nd St., New York, N. Y.



Sugar . . . and The National City Bank of New York

There are good reasons for its popularity

The average American consumes about a quarter pound of sugar a day. And it's easy to understand why. Sugar is an almost perfect form of energy. One of the easiest of foods to digest, it supplies energy faster than any other food—about a minute after eating. And it *tastes good!*

Only about half our daily consumption comes out of the sugar bowl. About 10% is eaten as candy, 10% drunk in soft drinks, and the rest consumed in dairy, bakery, canned and other goods.

Sugar can be grown nearly everywhere in the world, but

geography has made Cuba, Puerto Rico, Hawaii, and the Philippines our chief overseas suppliers. Domestic growers account for about 27% of our consumption, Cuba 34%, and the Philippines, Hawaii and Puerto Rico about 13% each. About 80% of the sugar raised in the United States comes from sugar beets. There's no chemical difference between beet sugar and cane sugar, so you can't tell them apart. (You recognize maple sugar because it's not completely refined. A little of the molasses is left in for flavoring!)

Like other industries which require comparatively large amounts of short-term credit, major sugar growers and refiners come to The National City Bank

of New York for financing, as well as for day-to-day banking services. They think of National City as "their banker," instead of as just another bank. In this country we have correspondent banks in every state, and 70 Branches in Greater New York. Overseas, we have 57 Branches and correspondent banks in every commercially important city of the free world. For more about the advantages of having National City as "your banker" write

The National City Bank of New York
55 Wall Street, New York, N. Y.

Member Federal Deposit Insurance Corporation

First in World Wide Banking



A wheel's work is never done

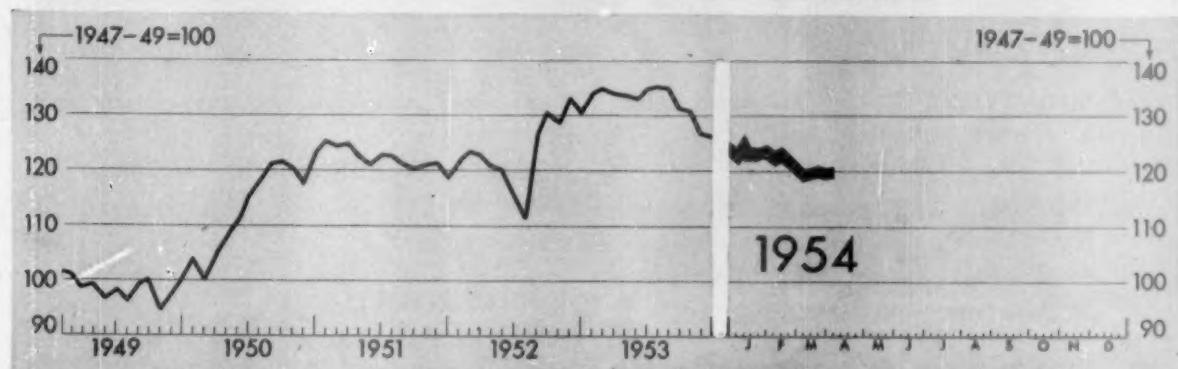
Rolling or at rest . . . wheels have to take all kinds of stresses and strains, both expected and unexpected, under a bewildering variety of brutal hauling and loading conditions.

Analyzing these stresses and strains . . . and engineering wheels to withstand them with an extra margin of safety has been the business of Kelsey-Hayes for more than 45 years. That's why manufacturers who keep American industry and the American people *on the go* look to Kelsey-Hayes for leadership in wheels. Kelsey-Hayes Wheel Company, Detroit 32, Michigan.

KELSEY HAYES

World's Largest Producer of Passenger Car Wheels
WHEELS • BRAKES • HUBS • BRAKE DRUMS • SPECIAL PARTS FOR ALL INDUSTRY

FIGURES OF THE WEEK



Business Week Index (above)

Latest Week	Preceding Week	Month Ago	Year Ago	1946 Average
*120.8	†120.6	120.2	132.4	91.6

PRODUCTION

Steel ingot production (thousands of tons)	1,626	†1,648	1,652	2,230	1,281
Production of automobiles and trucks	143,299	†149,562	139,263	170,567	62,880
Engineering const. awards (Eng. News-Rec. 4-week daily av. in thousands)	\$47,616	\$44,751	\$36,048	\$49,887	\$17,083
Electric power output (millions of kilowatt-hours)	8,463	8,491	8,586	8,019	4,238
Crude oil and condensate production (daily av., thousands of bbls.)	6,486	6,452	6,433	6,341	4,751
Bituminous coal production (daily average, thousands of tons)	1,112	1,125	1,129	1,394	1,745
Paperboard Production (tons)	225,519	239,337	223,579	251,974	167,269

TRADE

Carloadings: manufactures, misc., and l.c.l. (daily av., thousands of cars)	66	67	67	79	82
Carloadings: raw materials (daily av., thousands of cars)	34	35	36	40	53
Department store sales (change from same week of preceding year)	-11%	-13%	-3%	+11%	+30%
Business failures (Dun and Bradstreet, number)	267	277	223	171	22

PRICES

Spot commodities, daily index (Moody's Dec. 31, 1931 = 100)	438.2	435.7	426.9	413.6	311.9
Industrial raw materials, daily index (U. S. BLS, 1947-49 = 100)	84.7	84.0	81.2	89.9	††73.2
Foodstuffs, daily index (U. S. BLS, 1947-49 = 100)	101.6	102.0	99.5	87.2	††75.4
Print cloth (spot and nearby, yd.)	20.1¢	20.2¢	19.9¢	21.1¢	17.5¢
Finished steel, index (U. S. BLS, 1947-49 = 100)	140.9	140.9	141.0	130.7	††76.4
Scrap steel composite (Iron Age, ton)	\$24.50	\$24.33	\$23.50	\$43.92	\$20.27
Copper (electrolytic, Connecticut Valley, E&MJ, lb.)	30.000¢	30.000¢	29.985¢	30.245¢	14.045¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.)	\$2.43	\$2.42	\$2.43	\$2.38	\$1.97
Cotton, daily price (middling, ten designated markets, lb.)	34.11¢	34.20¢	34.21¢	32.91¢	30.56¢
Wool tops (Boston, lb.)	N. A.	\$2.12	\$2.12	\$2.10	\$1.51

FINANCE

90 stocks, price index (Standard & Poor's)	215.6	†211.6	210.4	197.5	135.7
Medium grade corporate bond yield (Baa issues, Moody's)	3.47%	3.48%	3.55%	3.61%	3.05%
Prime commercial paper, 4-to-6 months, N. Y. City (prevailing rate)	2%	2%	2%	2%	‡-1%

BANKING (Millions of dollars)

Demand deposits adjusted, reporting member banks	51,812	53,325	53,913	51,802	††45,820
Total loans and investments, reporting member banks	78,055	79,247	79,534	76,827	††72,036
Commercial and agricultural loans, reporting member banks	22,763	22,821	22,407	23,269	††9,299
U. S. gov't guaranteed obligations held, reporting member banks	30,850	31,609	32,292	29,547	††49,879
Total federal reserve credit outstanding	25,316	25,625	25,689	25,023	23,883

MONTHLY FIGURES OF THE WEEK

	Latest Month	Preceding Month	Year Ago	1946 Average
Wholesalers' inventories (seasonally adjusted, in millions)	February	\$11,850	\$11,783	\$11,405
Retailers' inventories (seasonally adjusted, in millions)	February	\$22,421	\$22,521	\$9,791
Employment (in millions)	March	60.1	x60.1	61.5
Unemployment (in millions)	March	x3.7	x3.7	55.2
				2.3

*Preliminary, week ended April 3, 1954.

†† Estimate.

‡ New series not comparable with previous data.

N. A. Not available.

§ Date for "Latest Week" on each series on request.

in BUSINESS this WEEK . . .

GENERAL BUSINESS:

THE UNBELIEVABLE BOMB. An island disappeared. A world began to change.....p. 25

THE EISENHOWER BAROMETER READS: Better—but. Easier breathing for the economic advisers, but unemployment figures hold two disturbing undertones

EISENHOWER TEAM: WHY THESE ARE GONE. The one-year men are going back home—some

disappointed, some bitter. Others will quit soon too

HOT PACE FOR AUTOS, GAS. Competition gets rougher every day.....p. 32

Business Briefs

SPECIAL REPORT:

PLASTICS. They're stand-ins that made good on their own. Today they're doing all kinds of jobs—and doing them well.....p. 100

BUSINESS ABROAD:

NO TAX HELP FOR BRITISH BUSINESS. Butler's new budget . . . and why the businessman is a little angry

p. 136

MADE-IN-JAPAN goods will flow more freely in Canada now...p. 142

TO KEEP OR NOT TO KEEP. That's the question today over German property confiscated after World War II

p. 146

ARGENTINA WOOS SOVIET TRADE. And U. S. sales sag..p. 150

COMPANIES:

DESIGNING A SOUPED-UP TRUCK TRACTOR. Skeptics hooted at Super Service Motor Freight—until one day last month.....p. 178

NEW DEALS IN GAS. Little Big Inch line may switch over from gas to oil.....p. 83

FINANCE:

IT'S AN OLD-FASHIONED FREE-FOR-ALL. The boxing business is for sissies. Look at them scrap on the railroads.....p. 52

BACK TO ROOST. Young's battle for control of the New York Central took a tricky bounce this week....p. 61

THE 1953 BILLION DOLLAR CLUB. In assets . . . and in sales . . . these companies made the grade....p. 62

GOVERNMENT:

STEPPING UP SURPLUS SALES. Uncle Sam's attic is full of bargains. But keep your eyes open.....p. 48

	Page
Business Outlook	17
Washington Outlook	37
International Outlook	155
Personal Business	175
 The Trend	 192
Figures of the Week.....	21
Local Business	172
Readers Report	8

LABOR:

ILA STRIKE BROKEN, BUT DOCK PEACE IS UNSTEADY. Violence is deferred, but not yet wiped away

p. 160

IUE QUANDARY. Anti-Red union finds it must defend two alleged Communists

p. 164

OPENING ROUND IN '54 ANNUAL WAGE FIGHT. The first shot was fired last week.....p. 166

UNION BIAS. Connecticut court upholds fine on AFL for barring membership to Negroes.....p. 168

MANAGEMENT:

CREATING A FUTURE FOR A PIONEER. How much can one man do for an ailing company? Take Stromberg-Carlson, for example.....p. 41

MARKETING:

POINT-OF-PURCHASE DISPLAYS: THE FINAL ASSAULT ON THE CUSTOMER. Does noise and motion make the cash register ring?.....p. 122

GIVEAWAYS are legal, says the Supreme Court.....p. 128

YOU SIMPLY WAIT FOR THE POPULATION. That's Federal Department Stores' philosophy in suburban Detroit

WAREHOUSES OUT. J. C. Penney says they don't pay any more. Let the manufacturer ship direct..p. 133

THE MARKETS:

UP TO THE LEVELS OF 1929. Amid the bear's dark muttering, the market continues to climb.....p. 158

POLITICS:

THE RACE IS ON. The battle for control of Congress begins next week. Here's how it shapes up today.....p. 65

PRODUCTION:

OFFSHORE OIL: STRANGE NEW RIGS GO DOWN TO SEA. It takes lots of money and nautical know-how to tap the Gulf Coast.....p. 68

COLOR CHECKER. This new electronic gadget makes color matching easy.....p. 78

NEW PRODUCTS

RESEARCH:

ATOMIC KEY TO THE UNIVERSE. Why atom smashers cost so much And why tomorrow's will cost still more

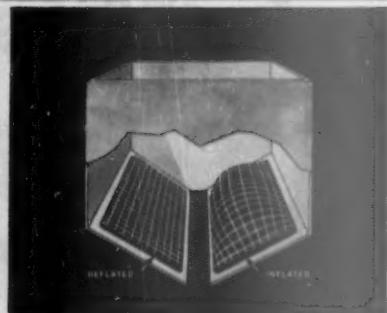
p. 86

THE RESEARCH PATTERN: College research is not enough.....p. 92

LOOK WHAT RUBBER PRODUCTS MADE WITH NEOPRENE ARE DOING



SMART, LIGHTWEIGHT RAINCOAT of neoprene-coated fabric is as comfortable and serviceable as it is stylish. It teams up with a hat of the same material to give complete rainy-weather protection the year round. And neoprene won't soften or crack—even through seasons of exposure in all kinds of weather.



INFLATABLE NEOPRENE PANELS (fed by compressed air) keep materials moving in this storage bin. Neoprene has the flexibility required . . . resists abrasion, flex cracking, attack from oil and chemicals.



NEW PIPE CONNECTOR makes it easy to join pipe or seal leaks without soldering or calking. Durable neoprene gasketing securely seals both the ends and the joint between halves . . . permits use with water, oil, or steam pressures up to 150 psi.

Neoprene can help your product sell better ... your equipment last longer

If you use a resilient material in your product, it's good business to strengthen sales appeal by using neoprene, Du Pont's chemical rubber. Neoprene's unique properties not only add exclusive selling points, but assure customer satisfaction through a long service life.

And this same balanced combination of characteristics can also mean big savings for you in replacement and maintenance costs. Use neoprene wherever plant operations require a rubber product.

You'll find that it outperforms and outlasts any other resilient material.

We can't tell the whole story of neoprene here, of course. That's why we've prepared a special booklet for executives that documents its advantages with actual dollars-and-cents examples of how using neoprene has resulted in important savings. It's a report we're sure you'll be interested in . . . a report every industrial executive should have. Mail the coupon today, and get your free copy.

MAIL THIS COUPON FOR FREE BOOKLET

E. I. du Pont de Nemours & Co. (Inc.)
Rubber Chemicals Division BW-4
Wilmington 98, Delaware



Please send me your free booklet—"A Report on Neoprene . . . for the Industrial Executive."

Name _____ Position _____

Firm _____

Address _____

City _____ State _____

NEOPRENE

The rubber made by Du Pont since 1932



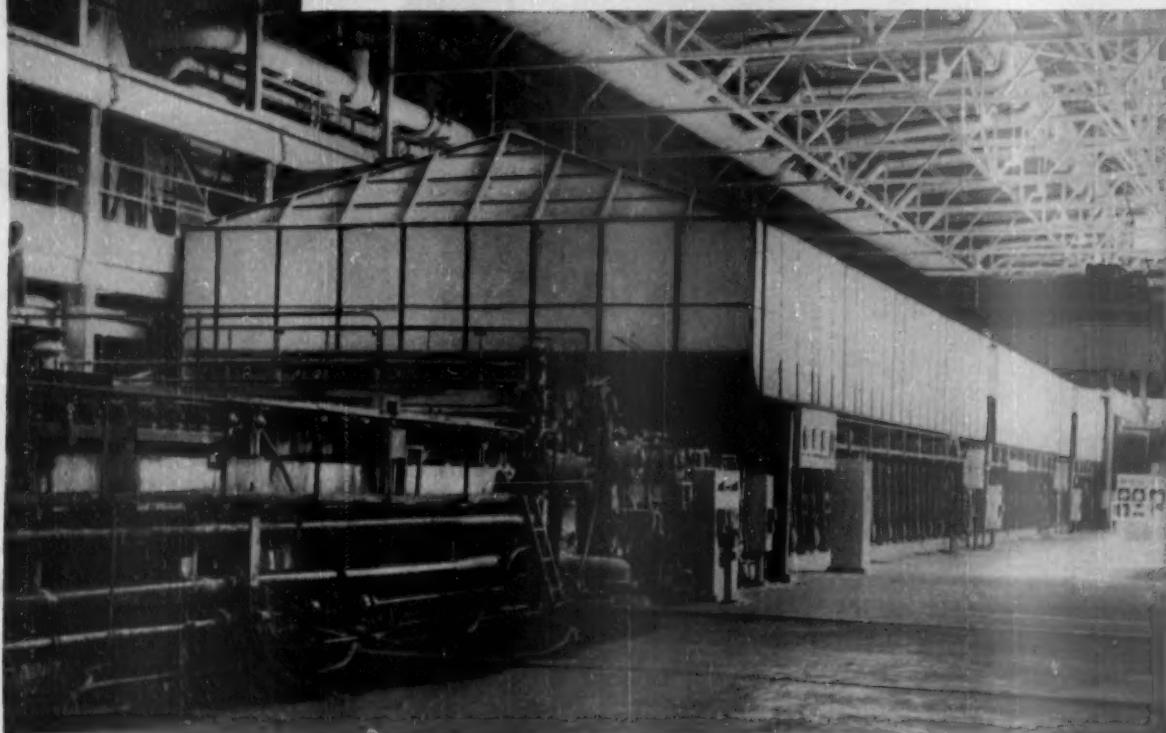
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

THE
TOUGH JOBS
GO TO
TEXACO

UNION BAG & PAPER CORPORATION'S

Savannah, Georgia plant recently set two world records with the help of Texacol. During the month of October, 1953, this mill maintained an average production of 1801 tons of kraft paper and paperboard a day. Their high for a *single* day was 2054 tons! The lubricant they used in setting these two world records for monthly and daily production was Texaco Paper Machine Oil HD!

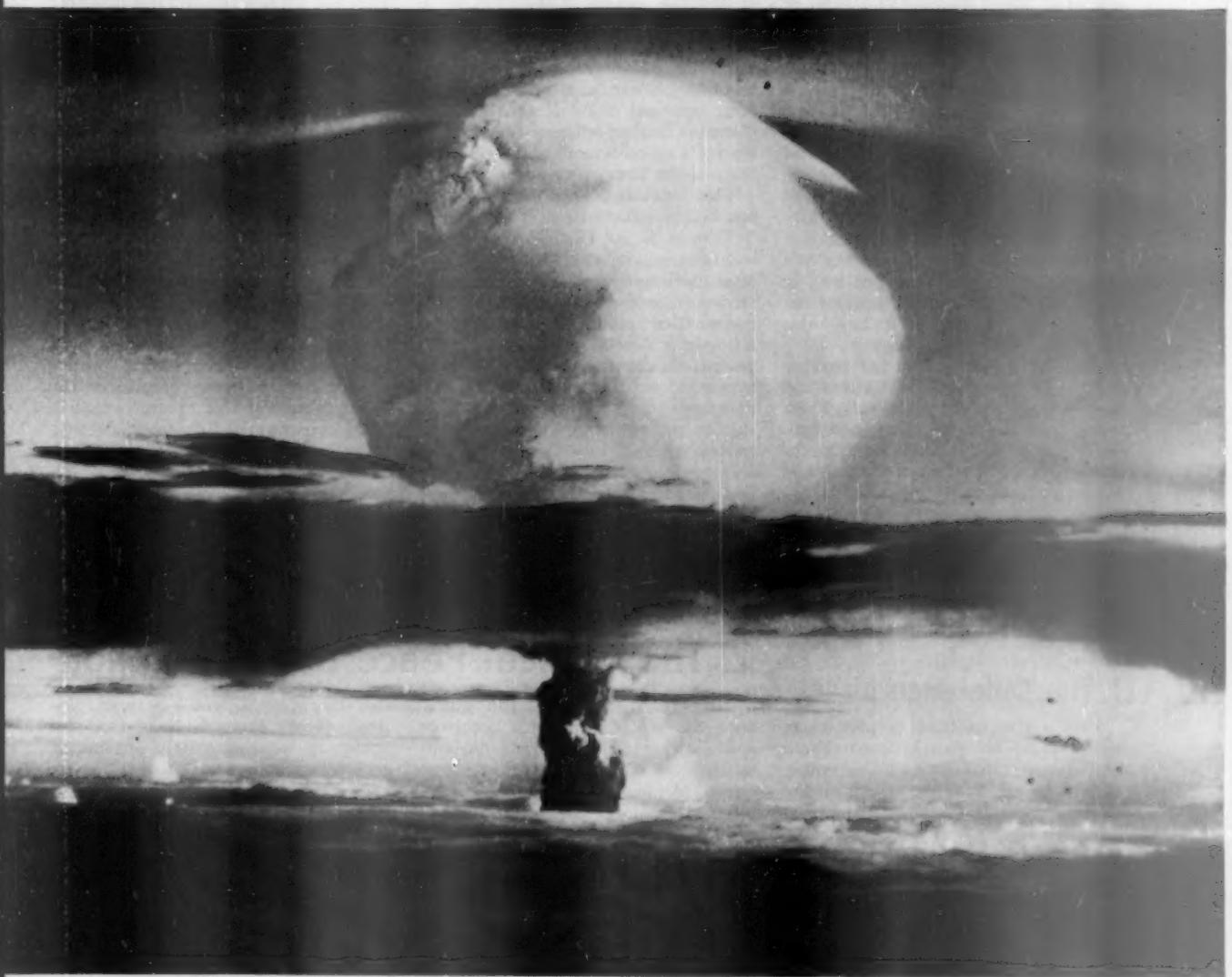


The above is just one of many examples of benefits gained through the use of superior Texaco Products and the services of skilled Texaco Lubrication Engineers. Texaco can help achieve these same goals in every major field of industry and transportation.

One agreement of sale is all that is necessary to supply all your plants. For details, call the nearest of the more than 2,000 Texaco Distributing Plants in all 48 States, or write The Texas Company, 135 East 42nd St., New York 17, N. Y.

TEXACO
INDUSTRIAL LUBRICANTS





IT'S CHANGING THE WORLD:

The Unbelievable Bomb

The weeks when March swung into April this year will very likely go down in history as the weeks when everything changed. Those were the weeks when a Pittsburgh newspaperman sat down with his wife and some road maps to figure out the best emergency route to her parents' farm. And they were the weeks when the age-old jockeying among the great powers began turning

into some completely different kind of relationship.

As the Atomic Energy Commission exploded its new bomb in the Pacific the people of the world moved—in fact and in their thinking—into the shadow of utter destruction.

By this week, the change in thinking is obvious. Ever since 1945, people generally—man in the street or general in

the Pentagon—have shown an almost neurotic ability to think about current problems in the same terms as if the atom bomb had never happened. Now, all over America, you can sense a change.

Partly, the sheer magnitude of the explosion did it—the island that disappeared, the newspaper maps plotting the destruction of New York. But

there have been such things before. What's new is the evident consternation of the world's leaders: The one-word comment, "Unbelievable!" of the Secretary of Defense when he saw the preliminary test reports. The debates in the British parliament. Even more impressive, the shift in Russian thinking. The Soviet leaders, after years of mocking at U.S. "atomic saber-rattling," have started soberly telling their people that an H-bomb war would end civilization; last week, they let the New York Times' Harrison Salisbury pass through censorship a report that the Russians, horrified by what they know of the possibilities of hydrogen warfare, are determined to settle the cold war. They want to salvage as much as they can of their position, but to settle.

• **The Change**—All of this points to a radical change in the facts, as well as in thinking. As far as any outsider can see through the fog of security, this seems to be the great change:

The new bomb is not just another weapon in the arsenal. It is a new and unexpectedly cheap explosive. There seems no reason why every A-bomb cannot be converted to an H-bomb, multiplying the might of the world's atomic stockpiles by hundreds overnight.

For years the experts who looked ahead could see the day coming when every major nation would have the power, at will, to wipe out any other nation. Now it looks to anyone as if, suddenly, that time has arrived or is only months away.

1. The Difference

Here is what has made the difference:

The feasibility of a hydrogen bomb was demonstrated back in November 1952. The explosion last month on the Marshall Islands demonstrated something far more startling. As usual, the essential facts are being kept secret. But out of the murk of rumors, unofficial reports, gossip, and half-announcements, this picture emerges:

• The H-bomb is enormously, almost incomprehensibly, powerful. The test bomb had the power of 10-million to 15-million tons of TNT. That's something like 500 times the power of the original Hiroshima atom bomb; it's perhaps 100 times the power of a modern A-bomb. That fact has captured peoples' imaginations, but in itself it's not too surprising; the possibility of hydrogen bombs of almost unlimited power has been predicted for years.

• The H-bomb is a practical and usable weapon that can be carried by existing planes. Again, it has always been assumed that the engineering problem of getting the bomb to workable size could be solved.

• The H-bomb is—relatively speak-

ing—dirt cheap and easy to build. This is the unexpected, the overwhelmingly important part of the picture—the aspect that all by itself changes the nature of warfare, the relations among nations, and even the history of the coming years.

• **The Unheralded**—The bomb that exploded last month, it seems clear, is not the H-bomb that scientists began to talk about toward the end of the last war, the H-bomb whose usefulness Washington was quarreling over a few years ago and that former President Truman finally ordered the Atomic Energy Commission to go ahead with. It's not the bomb everyone expected.

That bomb—and apparently the 1952 test bomb—was a tritium bomb.

Tritium is an extra-heavy form of hydrogen not found in nature. It can be manufactured by putting the metal lithium into the same sort of atomic reactor that produces plutonium for A-bombs. When an A-bomb is exploded, the heat generated can cause tritium to explode with similar force; by using enough tritium you should be able to make the explosion as big as you wish.

But tritium has big drawbacks. Biggest is that it's terribly expensive—not just in money, but in plutonium. The same reactor that produces a quantity of tritium could have produced, in the same time, plutonium with half a dozen times the explosive effect. Besides that,

tritium doesn't stockpile; half of it disintegrates every 12 years.

A tritium bomb, clearly, would always be a military freak—too wasteful for general use, important primarily for its scariness.

• **New Explosive**—The new bombs, all the evidence is, are not tritium bombs. They use a much cheaper and easier-to-get explosive.

No one has announced this officially, though the rumor is everywhere and is supported by the evident amazement and dismay of world leaders. But the conclusion shines right out of the known facts: The March explosion and the even bigger ones scheduled for this spring are using up enormous quantities of explosive, with a prodigality that suggests the availability of even more enormous quantities. Even if we had been willing to shoot off, in tritium bombs, the equivalent of our A-bomb stockpile, there just wouldn't have been productive capacity in the country to produce tritium on that scale.

Whatever the new explosive is, it's cheap. One plausible theory is that it is a special form of lithium itself—that an exploding A-bomb splits the lithium atoms into tritium, which then explodes.

That's still speculation, but the key thing is the apparent probability that every existing A-bomb is a potential H-bomb hundreds of times more powerful.

2. The Choice: Peace or Annihilation

More than once in human experience, the web of history has been torn apart, leaving men and nations suddenly faced with a numbing break in the continuity of their affairs.

The H-bomb has brought the world to such a point today. It is in the process of upsetting all our calculations about war and the relation of one state to another—just as gunpowder did in the 13th Century.

• **New World**—On the basis of what has already happened on a Pacific atoll and on the Siberian steppes, and judging by the repercussions in the world's capitals, you can reach these conclusions:

• With the development of the H-bomb, some kind of atomic balance has been reached, or nearly reached, between the U.S. and the Soviet Union.

• Because use of the H-bomb would mean certain annihilation for both sides, the chances are it will never be used in the East-West struggle. In fact, the "big war," though not small local wars, may suddenly have passed out of history.

• But for a time, perhaps for years, there will be no foolproof guarantees

that the H-bomb won't be used. Instead, there's likely to be a standoff—confirmed by diplomatic assertions of goodwill on both sides.

• Meanwhile, both the U.S. and Russia will build their defenses against atomic attack to the limit, and push development of intercontinental H-bomb missiles. With stockpiles on both sides reaching a world-destroying potential, more and more research and resources will be put into the development of industrial uses of atomic energy.

• This could bring a new industrial revolution not only to the great powers but to the whole world. International leadership then might well go to the nation that offered the world the most along these lines and seemed most willing to develop close economic and cultural relations with the rest of the world.

• **Churchill**—Listen to Britain's Prime Minister Churchill to get a measure of the world's new dimensions, military and political:

"With all its horrors, the atomic bomb did not seem unmanageable as an instrument of war. . . . But the hydrogen bomb carries us into dimensions

which have never confronted practical human thought."

Among nations, he says, "the new terror brings a certain element of equality in annihilation. . . . It is to the universality of potential destruction that I feel we may look with hope and even with confidence."

But Churchill still sees no easy road to an East-West agreement that would remove the threat of an H-bomb war. He is firmly convinced that the first need is for more confidence between East and West. And that means removing some of the sources of conflict inherited from the cold war Stalin launched back in 1947.

• **Basic Conflict**—Historical perspective shows how difficult this problem will be. The fact is that the H-bomb age dawned in the midst of one of the great clashes of human history, one comparable to the struggle between the Christian and Moslem worlds. The U.S. and Russia are locked in a conflict that involves fundamental differences. It involves basic geopolitical positions—whether the U.S., an island power, should allow Russia to achieve its ambition of controlling all Eurasia with its economic resources and strategic advantages.

H-bomb or no H-bomb, there's no reason to expect the Kremlin suddenly to forget its deep-seated hostility to the U.S., the country that has stymied Moscow's postwar ambitions.

• **Jockeying**—Fortunately, though, there has been a change in Soviet tactics since Stalin's death. The change has put the world somewhere between a cold war and a cold peace. The chances are that Communist actions in Indo-China represent jockeying in advance of the Geneva conference—not another Korea.

If that's the case, and the French can hold at Dienbienphu, it looks as though the months ahead will be characterized by an H-bomb standoff. This standoff may even be formalized at a summer meeting of Eisenhower, Churchill, and Malenkov. That's what the Churchill government is pushing for now, on the assumption that Geneva will take the heat out of the Indo-China conflict.

• **Standoff**—But our allies will want more than a standoff. That would give them no real guarantee of safety. What's more, it would still leave them at the mercy of decisions made in Washington and Moscow.

Now, more than ever, the only two countries in the world with even a modicum of control over their destinies are Russia and the U.S. It's a situation that stirs resentment in proud countries like Britain, France, Germany, and Japan. You can expect them to press stubbornly for an ironclad agreement for control of the H-bomb.

The Russians have already proposed

that atomic weapons be banned except for use in retaliation against atomic weapons—a proposal that the U.S. has ignored so far but can't afford to ignore much longer. Because of the vast numerical superiority of Russian armies, the U.S. will never accept the proposal as is. But the U.S. may come back with a suggestion that atomic weapons be banned except in retaliation against aggression—with "aggression" precisely defined.

• **Watchdog**—For complete protection against the H-bomb, however, the powers will have to go much further than this. They'll have to set up an international authority that would own, mine, and process all fissionable raw material—backed by international inspection.

Such an agreement may not be possible until Stalinism is completely dead in Russia. And that's only likely to happen through the combined impact of two forces: (1) a continuing economic and political crisis in Russia; and (2) a new surge of political and economic unity in the democratic world.

• **New Basis**—If it's a safe assumption that our H-bomb power has been neutralized, and therefore can't be used, then our leadership in the world will no longer be based so completely on our military strength. And from now on it will depend more and more on our economic and cultural relations with other countries. It will depend, too, on the moral position we take in the small local wars that may still flare up in the world's underdeveloped areas.

3. New Warfare

When the hydrogen bomb made its first frightening appearance on the world scene, U.S. military thinkers shivered just like everybody else. Then, sighing wearily, they retired to their quarters and set about rewriting their textbooks.

They had to work out an entirely new set of techniques. For the H-bomb is more than just a bigger bomb. It guarantees total devastation; for all practical purposes, it rules out the possibility of missing a target or of damaging it only slightly.

In one monstrous upheaval, it overturns almost all the old concepts of military strategy—both defensive and offensive.

• **Defense**—The Joint Chiefs of Staff now have to face up to several unpleasant truths in planning defense against a possible enemy:

• It no longer makes sense to gather a large number of troops, or a large amount of supplies, in any one place. The big staging areas common in World War II would invite disaster today.

• Nor does it make sense, any longer, to set up big air bases that will harbor armadas of bombers and fighters. Airfields will have to be small, remote, and far apart.

• On the sea, big convoys and big battle formations will be in extra danger. Numbers no longer mean safety, as was the case 10 years ago.

• **Offense**—These changes in defense thinking, along with the H-bomb itself, will mean big changes in offensive strategy.

Because it's no longer wise to mass troops along a battle line, land fighting from now on will look more and more like guerrilla warfare. Instead of thundering attacks by divisions and armies, you'll see quick thrusts by small, semi-detached, highly mobile units. The Army will do all it can to make its units—right down to platoons—as self-contained and independent as possible.

This scale-down from big units to small ones won't necessarily make land fighting less effective. During World War II the Army discovered that guerrilla tactics—infiltration, feints and jabs at many points—were often nearly as effective as massive, army-sized onslaughts. What was more, these small-scale attacks were very much less costly in both men and equipment.

The war in Korea proved the effectiveness of guerrilla tactics again. The modern, superbly equipped U.S. land army sometimes found itself faltering before a comparatively ill-equipped enemy—simply because the enemy often resorted to guerrilla warfare. The Army will take advantage of that lesson when it re-thinks its strategies for the H-bomb era.

The Navy, meanwhile, will work hard on its undersea fleet. Less vulnerable than surface ships to air attack, submarines will become increasingly important in the job of moving supplies and equipment. They'll also figure large in attacking enemy land installations—notably with guided missiles.

The Air Force will concentrate on dispersing its bases. And—as a likely candidate for the job of carrying H-bombs to enemy industrial targets—it'll work on ways of delivering the bombs.

Here again, the old concepts have gone out the window. In World War II, a favorite phrase of airmen was "saturation bombing." This meant dropping so many bombs on a target that the result was near-total destruction. Today, the emphasis is not on quantity but on quality. You need drop only one H-bomb to achieve total destruction.

Thus, the idea is to develop a stable of airplanes capable of going far enough, high enough, and fast enough to get that single bomb through the enemy's defenses.

Trouble Spots: These areas . . .



The Eisenhower Barometer Reads:

President Eisenhower and his economic advisers are breathing a little easier now that estimates of March unemployment are in.

Washington now sees no need for what the President called "slam-bang emergency measures." The Census Bureau's latest figures show 60.1-million people at work—not far from the all-time peak for the month.

Unemployment, for its part, leveled off in March—after several months of sharp increases. The Census figure held at about 3.7-million, only slightly higher than a month ago. About 5.8% of all civilian workers were out of jobs this March, the same as in February. That figure wasn't being cut down seasonally as it usually is between February and March, but it was still well under the 6.7% rate reached in March 1950, a postwar peak.

But the unemployment figures hold two disturbing undertones:

- Unemployment is never spread evenly. So some areas of the country—notably the Northwest, the Middle South, and Rhode Island—are hard hit (map).

- Farm employment was perking

up nicely in March—Census put it up 591,000 since January. But nonagricultural jobs, and particularly manufacturing jobs, were sliding (table, right). More than half of the drop in employment in the last six months has come in manufacturing. And March showed a continuing drop.

- Like a Bikini—Even the President's experts have trouble in digging behind these general figures. Census Bureau figures are based on a national sampling survey, and they aren't precise enough to pinpoint the geographical and industrial areas that are trouble spots. Information on these comes largely from Bureau of Labor Statistics reports on employment in industry and from reports on claims for unemployment compensation.

The experts, too, are caught in economic cross-tides. A 6% rate of unemployment looks a lot better on the upswing than on the downswing. But there are plenty of guideposts to point in both directions.

That's why one West Coast observer is saying that the unemployment statistics are like a Bikini bathing suit: What they reveal is startling, what they con-

ceal is vital. Here is what they show:

- Manufacturing—Only one broad group of workers has more jobs this week than it did six months ago: government employees. Even though Washington has cut 84,000 off federal payrolls, state and local governments have added almost 360,000 workers. Wholesale and retail trade have held their own across the nation. Mining has dropped slightly, and transportation workers are down sharply (there are 126,000 railroad workers collecting unemployment checks).

Construction has been hit—but it is picking up seasonally. Since last August, about 475,000 jobs have been lost here—or about one in five of the total decrease in jobs. Still, reports from across the country show the crews coming back to work.

The biggest drop—1.2 million jobs—since last August has been in manufacturing. Here again part of the drop can be blamed on winter. Lumber has laid off 100,000 workers (but March output climbed back to 92% of the year-ago rate, putting some men back into the woods).

Food and food processing industries

... and these industries

These Industry Groups . . .

Manufacturing
Contract construction
Transportation and public utility
Services and miscellaneous
Mining
Wholesale and retail trade
Finance, insurance, real estate

... Have cut employment since August by . . .

7.1%
17.5
5.0
3.4
5.9
0.4
0.7

... Keeping a total work force of . . .

16,027,000
2,240,000
4,118,000
5,225,000
782,000
10,297,000
2,062,000

... But contributing this share of a total drop

55.7%
21.5
9.9
8.3
2.2
1.7
0.5

This adds up to a total drop of 2.2-million jobs

100.0 %

... Especially Manufacturing . . .

These Manufacturing Groups . . .

TOTAL MANUFACTURING

Durable Goods

Transportation equipment

Primary metals

Lumber

Electrical machinery

Fabricated metals

Machinery (except electrical)

Stone, clay, and glass

Ordnance

All other durables

Nondurable Goods

Food

Textile mills

Apparel

Chemicals

Rubber

Tobacco

All other nondurables

... Have cut employment by . . .

7.1%

7.3

6.8

9.0

13.6

7.6

7.5

3.1

8.4

16.0

4.8

7.0

16.1

8.7

3.7

2.5

7.0

13.1

1.4

... Keeping a total work force of . . .

16,027,000

9,280,000

1,799,000

1,210,000

684,000

1,104,000

1,074,000

1,585,000

501,000

173,000

1,151,000

6,747,000

1,424,000

1,096,000

1,190,000

736,000

252,000

99,000

1,950,000

... But contributing this share of the total drop

55.7%

32.9

6.0

5.4

4.9

4.1

3.9

2.3

2.1

1.5

2.6

22.8

12.4

4.7

2.1

0.9

0.9

0.7

1.3

Data: Bureau of Labor Statistics

© BUSINESS WEEK

Better—But

have cut employment by 275,000—more than any other manufacturing industry and enough to account for one in eight of all the jobs lost in private employment. Many of these people will come back as crops are harvested.

- Behind the Figures**—To get behind this general picture—to reveal what the statistics conceal—BUSINESS WEEK this week sent reporters probing the trouble spots. Here are their findings:

The Pacific Northwest: Washington, Oregon, and Idaho have been running high unemployment since January. And, despite the upturn in lumber, their unemployment rates are well above the national average. Portland, Ore., for example, sees its unemployment running 50% above a year ago—and not likely to drop fast.

But the worst seems past. In Washington, Boeing has raised its payroll to 38,000, up 7,000 in a year. That's offsetting trouble elsewhere. Loggers generally expect to be back in the woods in 30 days. And firmer prices for lead and zinc are creating jobs in northern Idaho and eastern Washington.

The Middle South: Kentucky, West Virginia, Tennessee, and Mississippi

show up most poorly, Arkansas and Alabama less so. Unemployment is still on the upturn in Kentucky. In the other states, it has apparently peaked and is dropping seasonally.

Two industries share the blame for most of the local unemployment: textiles and coal mining. However, the volume of jobless claims is swollen in these states by a sizable number of industrially displaced persons. For example, in Tennessee, 15% of unemployment relief claimants in the last week of March were people who returned to Tennessee after losing jobs in the more highly industrialized states.

In North Carolina, less hard hit by unemployment, one-third of last month's claims were from textile workers; in November-December, half were textile employees. State officials think a turning point has been passed: New hiring is up, especially in the apparel industry that's growing up around the textile mills.

Rhode Island: This state is fairly well diversified in industry, yet textiles and textile machinery have dragged everything down. Woonsocket, a suburb of Providence, is a center of high-grade

worsted—and nearly one-third of its work force is unemployed. That's one of the highest rates in the country. The state's one bright spot is costume jewelry which, at its seasonal low, is better off than in average years.

Who Is Unemployed—Across the country the reports are the same: The marginal workers are being shaken out of the labor force.

Today's typical claimant for unemployment pay is quite likely to be a woman (that's true of half Rhode Island's jobless) and is either unskilled or only semiskilled. If the claimant is a man, he's probably an ex-farmhand who found boomer time employment in industry and who now finds his old farm job wiped out by mechanization.

Women are thrown out of work because (1) some of them went into factory work only for the time of highest pay and tightest employment, (2) most are trained only for one job that's now being cut out, (3) at best they usually rank among the semiskilled workers.

In general, the unemployed are those with least seniority and skill, both men and women. As a Cleveland employer said, "a year ago we were scraping the

bottom of the barrel for help—now we have the whole barrel, and more besides."

When an employer knows he can pick and choose his labor, he's more ready to release employees outright, rather than carry them through a dull sales period.

• **The Outlook**—Prospects for improvement in employment vary, of course, according to what category of employer dominates each region. Here are a few predictions from key areas:

California: In a few weeks, the canneries will be in full swing for the first time since December. Cannery employment will build up to about 75,000 in mid-August. Farming, too, will require more hands for the planting season. These two employers will soak up a good share of the 315,000 or so unemployed for March—which was 100,000 worse than a year earlier but nowhere near the 453,000 of March 1950, or the 531,000 of March 1949.

Long-range, the California picture looks bright. The state still has a healthy immigration rate, and the growth of population will produce new jobs automatically. It just takes time, say Californians.

Michigan: Seasonal increases in employment by industries will improve things until midsummer. Then another turn downward can be expected: Defense employment will still be dropping, auto employment normally hits a slack period in late summer, school and college graduates and returning servicemen will swell the labor force after June.

That state's troubles are magnified by its postwar prosperity, which lured 115,000 workers to Michigan since 1945. Only about 45,000 of those have given up and gone home, mostly to southern agricultural states. So the state faces a long-term gap between jobs and available workers.

Ohio: The Cleveland area, on the other hand, doesn't expect an upturn until July or even later. A July upswing would be contrary to usual seasonal trends, but the primary metal producers, metal fabricators, and diversified machine makers see late summer as the time for increased demand.

The Southwest: Texas and its neighbors seem to have felt the pinch less painfully than many other regions. For one thing, southwestern industrial plants had few defense contracts during the Korea period; for another, the region's chief industries include oil, gas, sulfur, chemicals, plastics, and all of these are doing well wherever they are. The movement of new industries into the Southwest has built up a huge backlog for construction. Industrial growth has offset the pains of a four-year drought, which farmers in some states have suffered.



Martin P. Durkin—quit as Secretary of Labor after row over Taft-Hartley changes.

← IN POLICY FIGHTS



Clarence E. Manion—left commission on state relations over Bricker amendment.

JUST GOING HOME →



William D. Mitchell—ousted as small business head; he was too tough on lending.

THE ONE-YEAR MEN →



Craig R. Sheaffer—out as Assistant Secretary of Commerce in Bureau of Standards row.

Eisenhower

An incoming President's original team of administrators is always his best. You can write that down as a general rule of government—and one that's coming to life in a real and painful way for President Eisenhower. Some of the first team men whose absence today causes the pain are shown in the pictures on these pages.

There's a new resignation on the President's desk every few days, and a lot more are coming. The original team of businessmen-administrators is no longer intact. Eisenhower now must face up to the problem that has plagued every U.S. President—how to keep top-quality administrators in government.

All this is a disappointment to some of his more optimistic supporters. Up to a few weeks ago they had hoped his skill as a leader of men, plus the willingness of businessmen to serve him, would lead to something happier for the first Republican Administration in 20 years. That hope is largely gone.

• **Replacements**—There are indications



C. D. Jackson, special adviser on cold war policy, went back to publishing business.



Ralph A. Tudor, Under Secretary of Interior, wants to return to his engineering firm.



Kenton R. Cravens, RFC director, had an urgent call from his old bank in St. Louis.



Roger M. Kyes, Deputy Defense Secretary—didn't even move his family to Washington.



Joseph M. Dodge, budget director—friends say he was tired of working for government.



Donald B. Lourie, Under Secretary of State—he found entertaining was very costly.

Team: Why These Are Gone

that Eisenhower may have even more than his share of trouble in finding suitable replacements.

He hit an unusually high average on the first go-around. The executive who gave up \$100,000 a year to join Eisenhower became a hallmark of the Administration. But the experience of some was not happy. Some who have quit, and others who are waiting to step out, are bitterly disappointed, and now they are telling their friends, "Stay out." Here are some of the reasons:

- Low government salaries. Many of the business executives were used to big incomes, but weren't wealthy—particularly men in their 40s and 50s who had barely reached the top rung in business. In some cases, even if they were willing to reduce their standard of living, their wives were not.

- Government is more than a matter of reshuffling bureaus, installing business methods, firing Democratic politicians—and going home after a year. Bureaucratic reform is slow. Some

businessmen are disappointed in the year's results and are warning their friends not to take a job in Washington unless they want to stick it out.

- Politicians of both parties bother the businessman-administrator with no experience in practical politics. Men like Treasury Secretary George Humphrey and retiring Budget Director Joseph M. Dodge find politics particularly galling.

- A few have opposed Eisenhower policies, and have left the government by request or in protest.

There is also the feeling—shared by practically every businessman in government below the age of 60—that the longer he stays away from his private affairs, the more he risks his future.

- Not So Many—With all these reasons at work, the wonder is that the trickle of resignations has so far been so small. There has been an exaggerated impression—they total only about a score—partly because of some bad timing and some awkward press relations.

The resignation of Deputy Defense Secretary Roger M. Kyes, for example, came at a time that made it look as though it might be a protest in the McCarthy-Army row.

His friends insist, however, that his resignation had long been in the works.

Eisenhower has made some 800 appointments. Of these, he has only lost one Cabinet officer—labor leader Martin P. Durkin as Secretary of Labor; and only one at sub-Cabinet rank—Dodge as budget director. That stacks up well with other administrations.

- Just for a Year—In most cases, departure from Washington is due to a mixture of reasons. You can see that among the men who explain that they never intended to stay more than a year.

- Of these, Kyes has the clearest case. He said from the beginning that he was there to install business methods in the Pentagon, and would leave when his year was up. Washington believes he went back to Detroit to resume the General Motors connection he broke

to become a government official. A vice-presidency and the big job of managing Chevrolet is one possibility.

• **Puzzling**—Dodge's departure is one of the most puzzling. He had spent something like 10 out of the past 13 years in government service.

In Washington, he supervised a big reduction in spending—but did not reach his cherished goal of a balanced budget. In typical fashion, he managed his resignation in deepest secrecy, but Washington did not miss the timing: a few days after the President's announcement that if business conditions warranted he would consider such anti-recession measures as tax reduction. This, of course, would have been a major setback to budget balancing.

Dodge's friends say the real explanation is that, at 64, he was tired of government and wanted to go back to his bank.

This week, Eisenhower elevated deputy director Rowland R. Hughes to the top budget job.

• **Too Costly**—Donald B. Lourie stepped out as Under Secretary of State with a full roster of typical businessman reasons. He came down for a year—and his year was up.

Lourie, at 54, gave up something like \$90,000 a year as president of Quaker Oats to take his \$17,500 job. He and Mrs. Lourie moved into an attractive Georgetown house, paid \$500 a month rent, entertained in the glossiest State Dept. tradition. Mrs. Lourie had only a 9-to-5 maid, got her own family dinners, had extra help for entertaining. Within a year Lourie was telling friends he would have to borrow to pay his income tax.

They moved into an apartment, cut their entertaining, dropped the day-maid for a once-a-week cleaning woman. Then came another pinch: Government expense accounts did not repay Lourie in full for the frequent trips he had to make.

Mrs. Lourie began to tell friends they were going back to Chicago for two reasons: Entertainment and travel took too much money, and "The presidency of Quaker Oats is not going to lie around forever."

• **Going Back**—The same idea is back of many decisions to leave Washington—including the departures of the men in the top row of pictures on page 31. Others in the same category are:

Dr. Robert Cairns—quit as deputy to Assistant Defense Secretary Donald Quarles to go back as assistant research director for Hercules Powder.

Dr. John A. Hannah, Assistant Secretary of Defense for Manpower—returning in a few months to the presidency of Michigan State University.

W. Bedell Smith, Eisenhower's old comrade in arms—considering offers from private industry.

Hot Pace for Autos, Gas

The automobile and gas businesses are up to their big selling season—and competition gets rougher every day. This week, the auto sales campaign is running its highest temperature yet. And gasoline companies are maneuvering like mad for a bigger stake in filling new and old gas tanks.

I. Auto Race

At the quarter post in the car sales race, the four leaders were running in unfamiliar positions. It looked like Ford first, Chevrolet second, Buick third, and Plymouth fourth.

This ranking is still unofficial, in part. For the first two months of 1954, however, Ford officially outsold Chevy—Ford points to R. L. Polk & Co. registration figures to show an edge of nearly 1,600 in sales—and unofficial tabulations show Ford widened its lead during March.

While Ford crowded, Chevrolet pointed to last year's record. Then, Ford led in January sales, 76,617 to 69,933, but wound up more than 200,000 cars behind Chevrolet at the end of the year. Meanwhile, Buick claimed third place from Plymouth by virtue of an estimated 42,000 sales in March; Buick had also outsold the traditional third-place Plymouth during February.

• **Somebody Loses**—Industrywide, sales in January–February dropped from 782,779 a year ago to 710,380 this year. Only Ford, Mercury, and Chevrolet sold more than they did a year ago. The gains of the Ford stable (up from 24.2% of the market in 1953 to 31.8% now) and General Motors (up from 42.5% to 45.4%) are coming out of the hide of Chrysler (down from 21.9% to 16.3%) and the Little Five independents (down from 10.7% to 6%).

II. Kaiser-Willys

Last week was a big week for the year-old merger of Kaiser and Willys in Toledo (BW-Mar. 28 '53, p32). The good news was in potential, not in present, performance. Production at Willys Motors, Inc., was still creaking along last week at only 350 Willys and 160 Kaiser passenger cars.

These were Willys'—and Toledo's—rays of hope:

• After canceling all Jeep orders as of Mar. 31, the government said it would order 500 Jeeps a month "for an indefinite period." Production will be far below last year's average of 3,125 Jeeps a month, but jobs will continue for hundreds of workers who had expected to be laid off.

• The company announced that

Willys bodies will be built in Toledo instead of at the Murray Corp., Detroit. Two weeks earlier, it announced the transfer of Kaiser body-making from Willow Run to Toledo. The consolidation of body work, 70% in the Toledo plant and the rest in the new stamping plant at Shadyside, Ohio, will add 900 men to the home plant work force.

It is rumored that the next move will bring Kaiser engine production to Toledo from the present site in Detroit.

• The company appointed Edwin C. McCleary, former Ford production executive, as vice-president in charge of all manufacturing. McCleary succeeds Raymond R. Rausch, Ward Canaday's right-hand man in the old Willys-Overland setup. His main job: getting Willys' multistory, multiproduct assembly line functioning smoothly. The line has repeatedly bogged down in producing Kaisers and Willys simultaneously.

• It leaked out that the Willys union is considering abandoning its incentive pay system as a step in helping the company meet sales competition. Richard T. Gosser, head of Local 12 of the United Auto Workers, reportedly made the suggestion, which would save the company 35¢ an hour on many production workers.

III. Spiking the Gas

With gasoline stocks flooding higher and higher as refining outruns sales, every oil company is seeking to make its brand irresistible to motorists.

Up to now, advertising has been pitched in either of two directions: (1) additives that improve efficiency, cut carbon deposits; (2) higher octane that burns cleanly and gives more power (BW-Nov. 14 '53, p61). Shell Oil Co. leads the additive group with its TCP (for tricresyl phosphate), while Standard Oil Co. (N. J.) carries the torch for high octane.

• **Newcomers**—Now come major oil companies that represent both points of view, plus a third combination:

• Texas Co. came out last week with an additive called Petrox, derived wholly from petroleum, with no inorganic material. The formula is exclusive with Texaco, which made it secretly at Port Arthur, Tex., for three months before the new gas came out.

• Phillips Petroleum Co. unveiled its Phillips 66 Flite Fuel, spiked with alkylate, an octane booster that has been limited to aviation fuel.

• Socony-Vacuum Oil Co. will market a new Mobilgas Special next week, with a compound of several additives (including a phosphate) and with a higher octane rating, too.



IT'S HARD TO BE FUNNY ABOUT MONEY!

(The umpteenth ad on the subject)

By Mr. Friendly

To write this poem was quite a strain,
I beat my brains out, brain by brain.
Trying to be bright and funny
On the theme, *we save you money!*

I have said this umpteen times,
Now I'm running out of rhymes!
To keep me sane—to end my woes
I've written all the facts in prose! *

AMERICAN MUTUAL

*Service from salaried representatives in 78 offices!
Savings from regular substantial dividends!*



* THE \$83,613 CASE OF W. C. HAMILTON & SONS

Company: W. C. Hamilton and Sons, Miquon, Pa., one of the largest fine paper mills in the U. S.

Record: An American Mutual policyholder for 16 years.

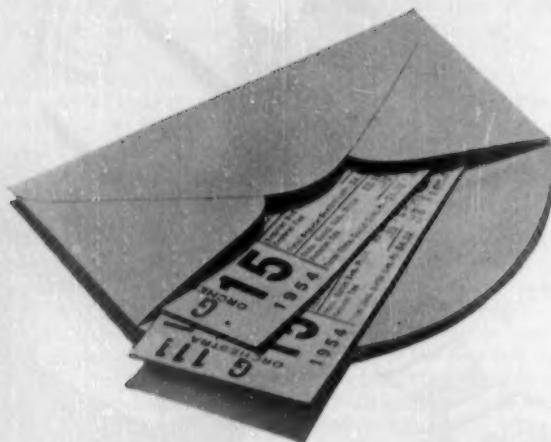
Savings through lower premiums: \$63,680 in past 8 years alone.

Savings through dividends: \$19,933 in 8 years.

Total savings: \$83,613.

Moral: If you are interested in a service that can help reduce costly accidents and premiums to way below average . . . and help raise employee morale, write for the complete case of W. C. Hamilton & Sons, American Mutual Liability Insurance Co., Dept. B-107, 142 Berkeley St., Boston 16, Mass.

BUSINESS BRIEFS



Get the Performance You Pay for

It's what you get on the inside that counts!

Ever stop to think that it's exactly the same when you buy equipment for your firm? It's the performance that counts!

We firmly believe this, even though ours is the highly unpredictable field of industrial dust recovery. Unpredictable because every problem is *made* different by plant layout, type of dust, etc.

It is because of these variables that we are impressed by the reports that have come rolling in from our customers. Reports on *their* day-to-day operation of our Electric Precipitators on many types of dust collection problems.

The cold, inescapable facts show truly amazing records for efficiency . . . for low maintenance . . . for versatility. Records that cannot be touched by any other equipment now in use.

We invite your detailed examination of these facts just as they stand! The time it takes to let us know of your interest, could be returned in the same substantial gains that the owners of our Electric Precipitators are now enjoying. Write Buell Engineering Company, Dept. 30-D, 70 Pine Street, New York 5, N. Y.

buell



20 Years of Engineered Efficiency in
DUST COLLECTION SYSTEMS

New York Central's request that the Interstate Commerce Commission investigate some aspects of Robert R. Young's attempt to gain control of the Central has been denied (page 61). ICC said there were not enough grounds to investigate the dealings of Young's Alleghany Corp. in Central stock formerly held by the Chesapeake & Ohio. Central president William White promptly issued new charges that the Texas oil tycoons who bought the stock from C&O put up no cash of their own.

\$340,000 market profit in 90 days for the Teamsters Union is reported by president Dave Beck. This increment to the AFL union's \$32-million treasury was the only economic bright spot seen by Beck, who told the Harvard Business School Club of Southern California that "we are in a very serious recession" and that private business ought to do something about it.

Reo Motors directors have approved the offer of Henney Motor Co., of Freeport, Ill., to take over its assets and liabilities for \$16.5-million in cash. Reo, a Lansing, Mich., pioneer auto company, now makes mostly power mowers and trucks, has largely depended on government orders. Henney Motor is a custom maker of bodies, specializing in hearses and ambulances.

Mail-order sales continued to dip in March. Montgomery Ward led the downhill parade with a 22.8% drop below the 1953 month—it's worst drop since January 1952. Sears, Roebuck was down 12.2%; Spiegel, Inc., 17.3%.

TV movie quality may perk up under a deal just signed by General Teleradio, Inc., the principal owner of Mutual Broadcasting System. Teleradio will pay Bank of America something over \$1.2-million for a four-to-five-year lease on 30 films. The price is said to be high for TV rental, but the films—including Arch of Triumph and One Touch of Venus—are said to be of unusually high quality for TV.

Midvale Co., a maker of armor plate and heavy equipment, is considering selling itself, merging, or absorbing a small company to widen its civilian work. Cutting down of defense business has hit Midvale hard.



See what adhesives are doing today!

Helping to keep firewalls cool



There's no question about the value of fibrous glass padding for insulating furnace walls. It's fireproof. It's light in weight. Only problem is—to find a fastening method that will attach the fiber pads to steel quickly and effectively.

When Bard Manufacturing Co. of Bryan, Ohio, had to answer this question they called in a 3M sales representative for consultation. His recommendation was EC-104—a sprayable adhesive that forms an immediate bond between fiber and steel, permitting fast and effective application. Most important, the

use of 3M adhesive, EC-104, has permitted the manufacturer of furnaces to insulate cabinets at a much lower cost than any method previously used!

See what adhesives can do for you . . .
If your problem is fastening, why not follow Bard's example? Call in your 3M adhesives specialist. He'll be glad to assist you. For more detailed data, write in today for new, informative designer's handbook. For a copy, address your request to 3M, Dept. 14, 417 Piquette Ave., Detroit 2, Michigan.

see our catalog in
PRODUCT DESIGN FILE
or write for copy

ADHESIVES AND COATINGS DIVISION MINNESOTA MINING AND MANUFACTURING COMPANY

417 PIQUETTE AVE. DETROIT 2, MICH. • GENERAL SALES OFFICES: ST. PAUL 6, MINN. • EXPORT: 122 E. 42 ST., N. Y. 17, N. Y. • CANADA: LONDON, ONT.
MAKERS OF "SCOTCH" BRAND PRESSURE-SENSITIVE ADHESIVE TAPES • "SCOTCH" BRAND SOUND-RECORDING TAPE • "SCOTCHLITE" BRAND
REFLECTIVE SHEETINGS • "3M" ABRASIVE PAPER AND CLOTH • "3M" ADHESIVES AND COATINGS • "3M" ROOFING GRANULES • "3M" CHEMICALS

FACTS ABOUT Exide® INDUSTRIAL BATTERIES

EXIDES SAIL WITH THE FISHING FLEETS

THEY START LARGE GAS OR DIESEL ENGINES, OPERATE RADIO TELEPHONES, DEPTH SOUNDERS, RADAR, LIGHTS, BILGE PUMPS, OTHER EQUIPMENT.
EXIDES ARE ALWAYS ON THE JOB!



EXIDES MAKE YOUR TRAVEL COMFORTABLE

THEY KEEP RAILROAD CAR LIGHTS BRIGHT AND STEADY... KEEP CARS COOL EVEN DURING LONG STOPS.

WHEN LIGHTS GO OUT EXIDE LIGHTGUARDS GO ON!

THESE COMPACT EMERGENCY LIGHTING UNITS LIGHT UP INSTANTLY AND AUTOMATICALLY WHENEVER STORMS, FLOODS, ACCIDENTS OR FIRE CAUSE UNEXPECTED LIGHTING FAILURES. THEY PREVENT PANIC, INJURIES, PROPERTY DAMAGE, LOOTING.

CALL IN YOUR EXIDE SALES ENGINEER - LET HIM SHOW YOU HOW EXIDE BATTERIES CAN IMPROVE OPERATIONS, CUT COSTS, PROTECT YOUR BUSINESS.



Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa. • Exide Batteries of Canada, Limited, Toronto

WASHINGTON OUTLOOK

WASHINGTON
BUREAU
APR. 10, 1954



A few things you should know about Eisenhower's tax views—in case the recession does spread and more cuts are backed as a remedy:

He's opposed to higher personal exemptions. Plan of the Democrats is to raise exemptions from \$600. With each \$100 of increase, millions of income earners would go off the tax roll. Eisenhower wants to keep the tax base broad—keep people aware of government costs.

He would prefer a cut in tax rates. This would preserve a broad base for income taxes and still free whatever buying power is necessary.

And he would like any cut to be strictly temporary. Eisenhower is extremely reluctant to back off from budget-balancing goals. To him a balanced budget is a symbol of sound, orderly government.

Watch for two new members of the federal reserve board. Their names will be sent to the Senate this spring by Eisenhower. There's a vacancy on the board now. And the term of one member, R. M. Evans (still serving), expired Jan. 1. The appointments will have a twofold significance: (1) Eisenhower won't insist on a five-man board, as has been recommended by Chairman William McChesney Martin; and (2) the leanings of the men to be appointed may well show what Eisenhower expects from this key credit-controlling agency.

A further relaxation of credit is urged by Eisenhower's economists. These advisers feel that the reversal on "hard money" isn't broad enough.

The big reason: Guaranteed home mortgages still sell at a discount in some areas. These are the mortgages guaranteed by Federal Housing and the Veterans Administration.

Another cut in required bank reserves is talked of as the panacea. This is a quick way to pump up loanable funds in banks. And with housing, still on the boom, serving as a big prop under the economy, Washington doesn't want to take chances. So, there's pressure on the Reserve Board.

Easier home-buying terms by fall seem assured, regardless of whether the Reserve Board goes along.

Congress will take most of Eisenhower's housing program—liberalized FHA mortgage insurance on both new and old homes, on home modernization, and improvement of "blighted" urban areas. It's good news for construction and the home appliance industry. This prop will show in the fall.

The fight is against public housing. The House said "no" on new starts. But the Senate may support the White House and win a compromise.

Support for the secondary mortgage market won't be withdrawn. The plan to make a privately owned company out of the Federal National Mortgage Assn. (Fanny Mae) will go through, but will take years to complete.

Congress is beginning to roll on other parts of Eisenhower's program. The daily headlines have made much of the fact that few bills have passed. That's true, of course, but then the first 90 days of almost every session show few new laws. It's a time when committees are at work, deciding what legislation should be taken to the floor, and in what form. This session is no exception. Appropriations are ahead of schedule by nearly 30 days. Other measures are ready to pop. The three months from now to adjournment will be packed with action on legislation affecting you and your business.

WASHINGTON OUTLOOK (Continued)

WASHINGTON
BUREAU
APR. 10, 1954

Eisenhower set a fire under Taft-Hartley labor law revisions. He told House and Senate committee chairmen that he promised changes in the campaign and that he expects changes. As a result, committee action now is assured. But there's still doubt that a new law will be enacted.

House and Senate ideas are far apart on what should be done this year. The Senate committee, where labor has the strongest voice, has stuck close to the President's recommendations. The House committee, on the other hand, displayed less discipline. Its bill would toughen, not ease, the law.

A compromise is possible. But you have this sort of political split: Labor leaders won't be happy with anything short of scuttling the statute. The National Assn. of Manufacturers, on the other side, wants the law tightened up on labor. The end result may be a deadlock with no changes.

—•—

Renegotiation of defense contracts, voted by the House, will be passed by the Senate, retroactive to Jan. 1. There's some politics in debate on the bill—Democrats call the revisions "big-business favoritism."

St. Lawrence Seaway, approved by the Senate for the first time, will be O.K.'d by the House. The vote may come this month.

Adding two new states to the union is deeply involved in party politics. The Republicans want Hawaii brought in. It probably would vote GOP. But the Democrats insist on Alaska, too. It votes Democratic.

—•—

Aid for hospital construction, voted by the House, has a good chance of winning Senate acceptance. It's part of Eisenhower's welfare program.

Health reinsurance, federal backing for private medical insurance, is running into trouble. Opponents see it as a "sneak" socialization.

Expansion of social security has reached hearings in the House, the first legislative step. Chances are good, but not certain.

The vote for 18-year-olds faces tough going on both sides.

—•—

Atomic security: Plans to give more information to industry and to allies abroad face a rough time. Possible help to Russia is the reason.

Foreign aid will be continued, but not at the \$3.5-billion rate asked by the Administration. Talk is of a \$1-billion cut.

Flexible farm price supports, which mean lower farm prices under the present surplus conditions, hasn't much chance of winning Congress' approval. Eisenhower could win on this issue by vetoing if Congress freezes supports.

—•—

The debt ceiling will be raised beyond the present \$275-billion top. But the Democrats may block the Administration request for \$15-billion more, which would take the ceiling to \$290-billion. The political reasoning: Keep the budget-balancing Administration in hot water—preserve the issue.

—•—

The GOP may pick up a Senate seat in Colorado in the fall elections, now that Senator Ed. Johnson, the Democratic veteran, has decided not to run again. Governor Dan Thornton is the likely GOP candidate.

The political primary season opens this week, when Illinois votes Tuesday on party candidates to run in the fall. With the close divisions in House and Senate, primaries assume extra importance (page 65).

Copyright 1954 by The McGraw-Hill Companies, Inc. All rights reserved. This publication may not be reproduced, in whole or in part, without written permission from the publisher.

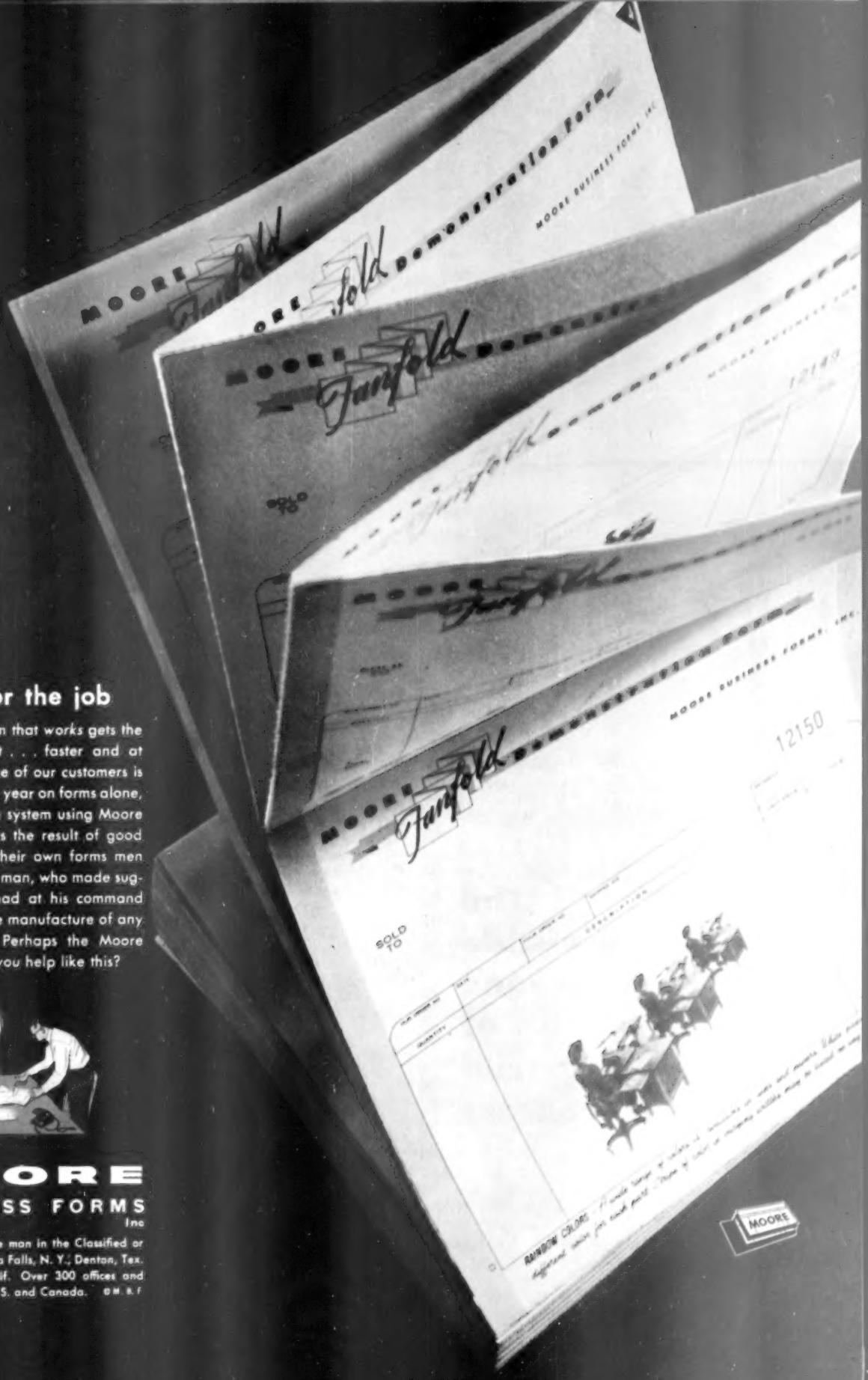
Ready for the job

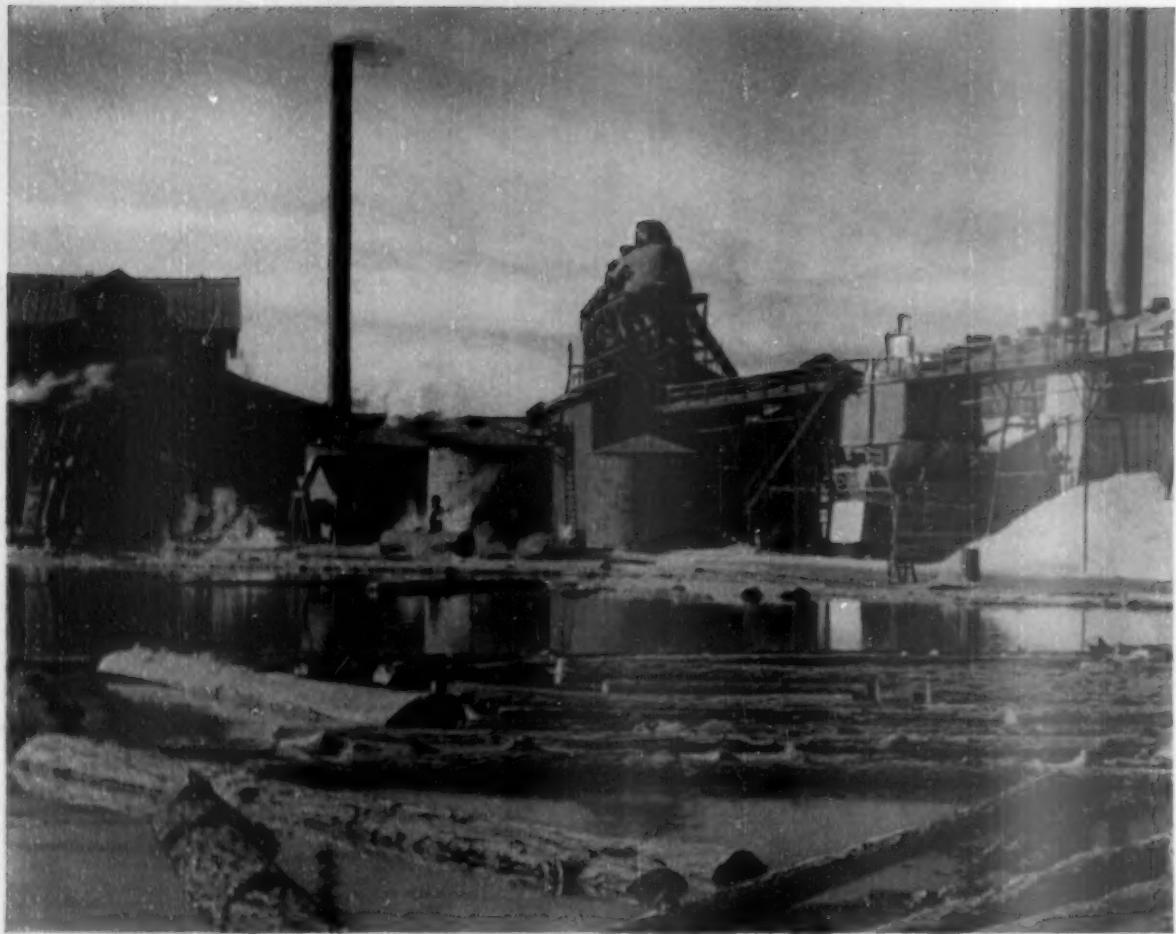
An office system that works gets the job done right . . . faster and at lower cost. One of our customers is saving \$3000 a year on forms alone, with an invoice system using Moore Fanfold. This is the result of good teamwork by their own forms men and the Moore man, who made suggestions and had at his command facilities for the manufacture of any forms-system. Perhaps the Moore man can give you help like this?



MOORE BUSINESS FORMS Inc.

Look up the Moore man in the Classified or write us at Niagara Falls, N. Y., Denton, Tex., or Emeryville, Calif. Over 300 offices and factories across U. S. and Canada. © M. B. F.





Western Pine Sawmill in Arizona

FTG Photo

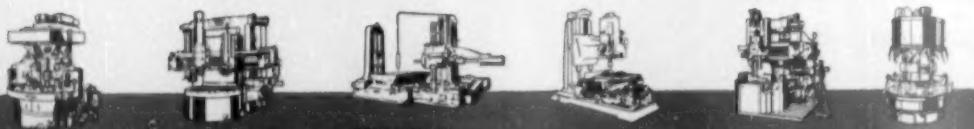
BULLARD

The
Invisible
Background
of
Industrial
Progress

When most of us think of Arizona, "The Grand Canyon State," we are reminded of its dry climate, rich mineral mines, rodeos, Hoover Dam, the greatest man-made water barrier in the world, and nature's wonderful spectacle, The Grand Canyon.

Yet, there are 3,607,000 acres of available commercial timber in Arizona which includes Douglas and White Fir, Engelmann's Spruce and Ponderosa or Western Yellow Pine. Ninety percent of this forest acreage is in Ponderosa Pine which is converted to a soft, fine-grained, inexpensive wood—in great demand for sashes and doors, flooring and general mill-work.

As an efficient method of manufacturing for builders of material handling equipment for the lumber industry. *Modern Machine Tools* are indeed "The Invisible Background of Industrial Progress."



THE BULLARD COMPANY • BRIDGEPORT 2, CONNECTICUT

MANAGEMENT

ROBERT C. TAIT was a banker before he was tapped for president of Stromberg-Carlson in 1949. After shaking up the company, he is . . .



Creating a Future for a Pioneer

When a company is ailing, how much can one man—even a new president from outside—do for it?

A look at Stromberg-Carlson Co. of Rochester, N. Y., shows that the right man can do a great deal, particularly if he's given a free hand, if there's still a market for the products, and if the company is suffering only from an attack of deficit pox—not double pneumonia.

• **Convalescence**—Stromberg is a 60-year veteran of the telephone and radio equipment business. The president from outside is ex-banker Robert C. Tait, who took over the company five years ago this month. At that time, Stromberg was definitely under the weather. In 1949 it lost \$478,000 and passed its dividend.

This month, however, signs of the deficit pox have disappeared. In fact, the company never looked healthier. Here are the signs:

- A \$3.5-million preferred stock issue (4½%), offered in mid-March, was 96% sold in two weeks, and has since advanced \$5 a share in asking price.

- The annual report for 1953 shows record high sales of \$65-million, after-tax earnings of \$1.7-million, and a common dividend of \$1.50 a share.

- The company felt hardy enough to start making radios for the first time in 18 months. This week, a portable, a plastic table set, and a clock model are on their way to dealers.

- **New Worlds**—More than this, Tait has led the company far beyond its historical boundaries, and he intends to keep right on doing so.

As Stromberg dates back to the pre-wireless era, these historical boundaries once contained only the telephone business. Despite the overwhelming shadow cast by the Bell System, there has always been substantial business for Stromberg in selling equipment to independent phone companies—one of the largest of which is the Rochester Telephone Corp.

In 1924, Stromberg branched away from the wire for the first time and started making radios. From the beginning it stressed the quality theme: "There's Nothing Finer than a Stromberg-Carlson." Three years later, it bought five-year-old radio station WHAM from Rochester newspaper interests. It thus became sort of a pygmy Radio Corp. of America, and it thrived through radio's golden age.

When World War II came, Stromberg cut over to war work. Its sales

didn't soar so high as those of some government contractors, but in 1944 they hit \$55-million. Then came peace, conversion—and trouble.

- **Too Many Radios**—Stromberg might have made out all right in reconversion if it hadn't strung along with radio too far. By 1948, the public wanted television—not radio. Stromberg was making TV sets, but it hadn't cut back on the fine radio consoles that had built its reputation.

As 1948 ended, Stromberg was laden with unsold radios. Sales for the year were over \$30-million, but earnings before taxes were only \$1.4-million; after taxes, \$877,602.

- **Management Shift**—Early in 1949, the board of directors decided that drastic steps were in order. Not only did they think that profits were too low, but they also were aware that morale was well under par. The board, however, was in a ticklish spot. The incumbent management people were all old hands around Stromberg. Board chairman Wesley M. Angle, then 66, had been with the company for 45 years. The president, Dr. Ray H. Manson, one of the grand old men of the industry, was then 71, with 33 years of service. Angle and Manson had been



**copper and
copper-base alloys**

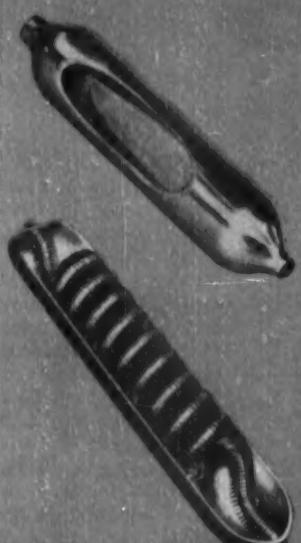


aluminum



**electric-welded
steel**

Tubemanship and SPINNING...



Spinning—a form of tube fabrication—is another product of Wolverine Tubemanship!

Simply by taking a length of plain tube, Wolverine can completely close either or both ends, leave the precise aperture you require, or form the tube end into the exact shape called for in your specifications.

Just think of the possibilities! You can substantially reduce—often eliminate!—extra parts, assembly operations, machining time, expensive tooling. On top of that, you can do the job quicker, easier, and—best of all—more economically.

Yes, the impact of Tubemanship is felt in many ways. It will pay to investigate this idea right now! Write for a copy of Wolverine's book on the unique Spun End Process!* WOLVERINE TUBE DIVISION of Calumet & Hecla, Inc., 1501 Central Avenue, Detroit, Michigan—Plants in Detroit, Mich., and Decatur, Ala.

*A patented process RE 22465

Wolverine Trufin and the Wolverine Spun End Process available in Canada through the Unifin Tube Co., London, Ontario.



WOLVERINE TUBE DIVISION
OF CALUMET & HECLA, INC.

Manufacturers of Quality-Controlled Tubing

PRODUCERS OF TUBING AND TUBULAR PRODUCTS OF COPPER, COPPER-BASE ALLOY,
ALUMINUM AND WELDED STEEL



TELEPHONE business was Stromberg's first line 60 years ago. Tait (above) is happy with it as he explores new fields.

running Stromberg since the early 1930s.

The directors considered promoting a vice-president, but they couldn't agree on a man. Most of them thought that the most likely candidates were imbued with the established ways of doing business. What they really wanted was new blood.

• Advent of Tait—The blood came in the person of Robert Tait, then 50 years old. He had been born in Rochester. After some experience in sales, advertising, and manufacturing, he had turned to banking early in his career. In 1949 he was a vice-president and loan officer of the Mellon National Bank & Trust Co. in Pittsburgh.

A group of Stromberg directors went to Pittsburgh, came back with Tait, and made him president. Angle was kept on as chairman; Manson was made honorary chairman. Responsibility for management, however, was handed over to Tait.

When Tait arrived in Rochester in April 1949, he found things were worse than he had anticipated. In his enthusiasm to get back to his old home town and take over his own show, he had made only a cursory investigation of what lay ahead of him. Now he found there were labor troubles, television wasn't selling well, buildings needed repairs, royalties to other companies were too high. But Tait wasn't thrown. He knew he was now in Stromberg up to his earphones, and he began an extensive revitalization program.

• First Steps—First, he wrote off 1949 as a loss year. He sold the radio set inventory at a loss and put a much-needed \$250,000 roof on one of the buildings.

Next, he tackled the divisional setup. Radio, television, and telephone had

**Tested,
Tasted,
Timed
for this moment...**



So that you need never think about it, we never stop thinking about—**QUALITY**. It's the key to your preference for our brands—your assurance that when you select any bourbon, rye, gin, bonded or blended whiskey sponsored by National Distillers, it is always *uniformly* satisfying to your taste.

With us, this unrelenting search for perfection is more than a matter of pride. It's a deep awareness that to make our products your repeated choice, they must be the finest.

A Quality Control Committee, whose members are chosen for their keen sensitivity of taste and smell, exercises scrupulous supervision over the production of each of our distilleries. At every stage—just after distilling, at least three times during the aging, and before bottling—the beverages must meet their exacting standards of skilled judgment. At the same time—expert laboratory technicians use every scientific resource to guide and control the quality of the product, from grain to bottle. Before it reaches you, the content of every bottle has been tested 50 times, to meet both the standards of the scientist and the connoisseur.

These distilled beverages represent only one branch of National Distillers' diversified activities today; others include the production of petrochemicals, solvents, intermediate and finished chemicals—all serving the nation's consumer and industrial needs.



NATIONAL DISTILLERS PRODUCTS CORPORATION NEW YORK 5, N.Y.

OLD GRAND-DAD • OLD TAYLOR • OLD CROW • PM • OLD SUNNY BROOK • GILBEY'S GIN
HILL and HILL • BELLOWS PARTNERS CHOICE • BOURBON DE LUXE • BOND & LILLARD • OLD HERMITAGE

Old Grand-Dad, Old Taylor, Old Crow, Kentucky Straight Bourbon Whiskies, Bottled in Bond, 100 Proof. PM Blended Whiskey, 65% Grain Neutral Spirits, 86 Proof. Gilbey's Distilled London Dry Gin, 100% Grain Neutral Spirits, 90 Proof. Bellows Partners Choice Whiskey—A Blend, 60% Grain Neutral Spirits, 86.8 Proof. Old Sunny Brook, Hill and Hill, Bourbon De Luxe, Bond & Lillard, Old Hermitage, Kentucky Whiskies.

DOORWAY TO THE Perfect Climate...



100 PARK AVENUE BUILDING, New York City
Architect: Kahn & Jacobs, New York City
Engineers: Jaros Baum & Bolles, New York City
General Contractor: George A. Fuller Co.,
New York City
Heating, Ventilating & Air Cond. Contractor:
Kerby Saunders, Inc., New York City
Fans by Buffalo Forge Company, Buffalo, N. Y.

100 PARK AVENUE, NEW YORK'S FIRST ENTIRELY AIR CONDITIONED BUILDING USES "BUFFALO" FANS THROUGHOUT

Whether you need ideal indoor weather like that in the beautiful 100 Park Avenue Building — or mechanical draft, process control, exhaust, air cleaning or straight ventilation — look to "Buffalo" for the dependable air power you'll need. The "Buffalo" line includes centrifugal fans and blowers, axial flows, propeller fans and air washers, comfort conditioning cabinets, and cleaning equipment. Trained "Buffalo" Engineering Sales Representatives in principal cities are ready to give you sound advice on the best possible selection for your requirements.

Shown is the new "Buffalo" Type "BL" Limit-Load Ventilating Fan, the quietest, most efficient and trouble-free unit in our long history of manufacturing fans. Its new bell-shaped inlet with fixed inlet vanes — its improved rotor, plus many other new design features, make the "BL" Fan today's best buy. Write for new Engineering Bulletin F-100.



BUFFALO FORGE COMPANY 458 BROADWAY

Publishers of "Fan Engineering" Handbook
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Sales Representatives in all Principal Cities

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING
FORCED DRAFT COOLING HEATING PRESSURE BLOWING

been under the same tent, but Tait reasoned they didn't belong there. Radio-TV is a volatile, fast-moving product-line operation; telephone is a contract operation, often for custom-made installations. When Tait arrived, he couldn't even find out whether either operation was making a profit. He established four divisions: radio-TV, telephone, sound equipment, and broadcasting. He wanted to know cost and profit figures for each one.

Broadcasting was already a separate department. Under the management of veteran William Fay, it was making a profit, but it was heading for a rough year of breaking into television. Stromberg was scheduled to start telecasting over WHAM-TV the June after Tait took office. Tait made the department a separate division, made Fay a vice-president. The venture in telecasting got off on time in June, and only burdened the new division for five months. By year's end, Fay was in the clear and making a profit again. By the spring of 1950, WHAM-TV was making a profit on its own. Last year, broadcasting grossed \$2.7-million as compared with \$1-million in 1949.

• **Labor**—About the time WHAM-TV was going on the air, Stromberg's independent union in the shop (it has national unions in its broadcasting division) threatened a strike because it couldn't negotiate a new contract. Tait was candid with the leaders. He told them the company was sure to take a loss in 1949, and he asked for a six-month moratorium. The union gave him a year.

Tait then investigated the Scanlon Plan for bonuses and incentives and was in turn investigated by the plan's originator, Joseph Scanlon, ex-officer of the United Steelworkers (CIO) and now professor of industrial psychology at the Massachusetts Institute of Technology. Scanlon presented the plan to the employees, and they accepted it. Last year, Stromberg's 5,000-odd employees received \$1,127,204 in bonuses.

• **Easy Terms**—A major project for Tait was the organization of the Stromberg-Carlson Credit Corp., a subsidiary to help finance independent telephone companies. This is where Tait's banking experience really paid off. There are some 5,300 small independent telephone companies in the U.S., most of which lack the borrowing power to finance capital outlays for new equipment.

To back the subsidiary, Tait got a \$2-million line of credit from the Metropolitan Life Insurance Co. Last year the telephone division sold \$16.3-million, compared with \$9.8-million in 1949, and the Met extended its line of credit to \$7-million.

• **Sound Business**—The Radio-TV business was simplified. Stromberg

Brainard Steel Announces

STEEL STRAPPING and STRAPPING TAPE from one source!

*The first
complete strapping service*

• The Brainard Strapping System has been expanded to include a complete line of strapping tapes, both pressure-sensitive and gummed, as well as dispensers for all applications. *For the first time* you can fill all your requirements—whether steel strapping or strapping tape—from one source.

Only your Brainard salesman is in position to give you completely unbiased recommendations—and advise you with authority which strapping methods are best for your particular applications. You do not have to weigh conflicting recommendations. This complete service also enables you to consolidate orders, simplify your purchasing, and save time.

Brainard salesmen, located throughout the U. S. and in Canada, are trained to study your operations, make recommendations, and give your personnel on-the-job demonstrations. Call your Brainard salesman today—or send the coupon for further information.



STEEL STRAPPING—Brainard's complete line of steel strapping, tools, and accessories covers over 1500 items. Strapping a heavy box, shown here, is a job ideally suited for steel strapping, which secures, reinforces, and prevents loss and pilfering.

STRAPPING TAPE
Brainard is the only prime source for both pressure-sensitive and gummed strapping tapes. Both are filament-reinforced to provide high tensile strength, and are designed for strapping applications. Carton reinforcement, shown here, is typical of many applications where tape may be the preferred method. Brainard Strapping Tapes are available in a complete range of sizes.



Brainard Steel Division, Dept. P-4
Griswold Street, Warren, Ohio

I would like a Brainard Strapping System analysis.
 Please send booklet on Brainard Strapping Tape.

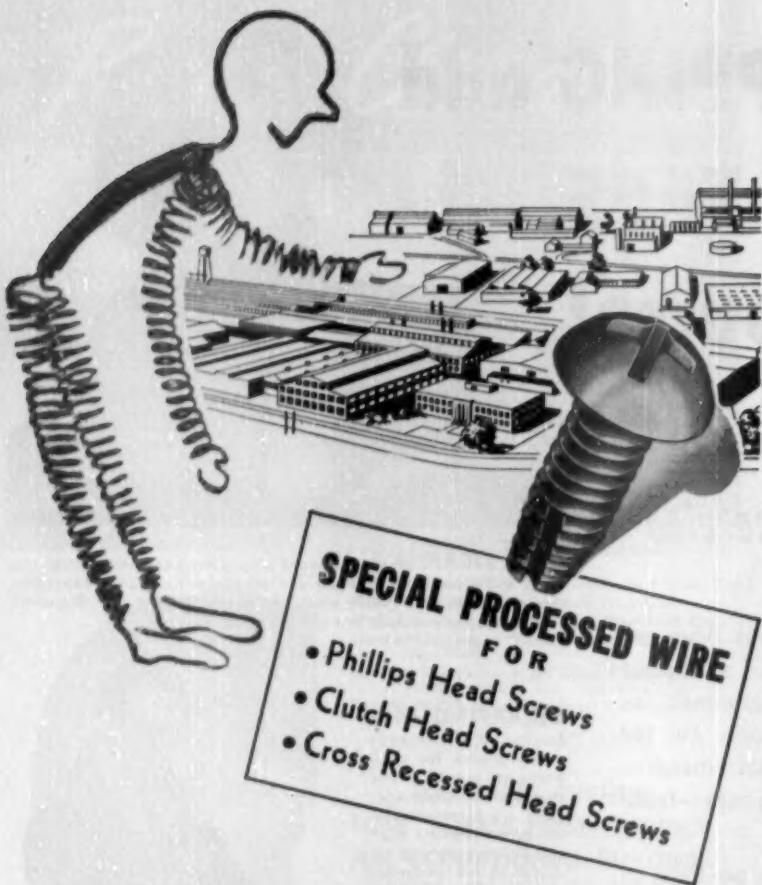
Name _____

Position _____

Company _____

Address _____

City _____ State _____



PRODUCTION CAPACITY DOUBLED

To keep pace with the rapid increase in the use of recessed head screws, Keystone is doubling its capacity in the manufacture of "Special Processed" wire.

The unusual qualities of Special Processed Wire are recognized by licensed manufacturers of recessed head screws. This wire has also proved itself superior on many other difficult cold heading jobs.

Our additional capacity will enable us to meet the ever-increasing demand for "Special Processed" wire by our present customers and at the same time welcome new customers.

INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company
PEORIA 7, ILLINOIS



now makes a single line of TV sets. It's getting color ready, already has a pilot model built. Console radios have been dropped. Sales in radio-TV have dropped from an unprofitable \$17.3-million gross in 1949 to a lucrative \$10.9-million last year.

The big change at Stromberg, however, is not the easing off in radio but the emphasis on sound equipment. Sound grew up during the 1930s as an arm of the radio business. Five years ago, it was doing \$1.1-million a year in sales. Two years ago, however, Stromberg brought out a balanced series of high-fidelity components: It claims to be the first major company that did so. Last year the sound division sold \$2.7-million.

The real impact of sound at Stromberg is in its defense business, which made up much of last year's \$32.7-million sales. The company is supplying the battle-announcing and intercom equipment for the carriers Forrestal and Saratoga and for the two atomic submarines.

The rest of the defense contracts and subcontracts are in radar, telephone, and classified work. When Tait took over, defense work amounted to only about \$175,000 a year. Now it's 50% of Stromberg's sales. Tait admits he'd breathe easier if this were down around 25%, but he's not turning his back on government business. Financing for the defense work comes largely from a \$15-million V-loan.

• **A Look Ahead**—When Tait starts talking about the future, he sounds more like an electronic engineer than a banker. He talks of controls for automated factories, of electronic switchboards, and of microwave relay systems. He believes the last 50 years have been a period of mechanization in which machines replaced muscles. Now, he says, comes a new revolution in which mechanical brains will replace man's senses of sight, taste, hearing, touch, memory.

For the future, Tait has put three irons in the fire:

• He hired the Battelle Memorial Institute to make two studies—one of the entire field of electronics, the other more intensive, to develop a list of products Stromberg might consider manufacturing.

• Stromberg has a half-interest in a new Los Angeles firm, Electronic Control Systems, Inc., which is doing research in electronic devices for data handling and process controls.

• The company's own research department is engaged in several long-range projects.

Tait doesn't want to tip off the opposition exactly where Stromberg-Carlson is likely to go in the electronics field, but one thing is sure: He doesn't intend to let it get caught again holding a buggy whip.

Executive Expenses Viewed Morosely

How do companies feel about expense accounts for executives?

The National Industrial Conference Board set about finding out and came up with these results from a survey of 183 companies:

- Control, by far, was the one problem most of the companies admitted as being difficult. Techniques vary, but about 80% of the companies generally agree with the president of a steel products company: "Executive expense accounts are difficult to control. We believe it is important to hold top officials in line . . . to set the pattern for the rest of the company."

- Less than 2% of the companies set daily limits on travel expenses. One that did let the president and executive vice-president use their own judgment, but all other officers get \$15 a day plus transportation.

- Companies generally pride themselves on being conservative on expense allowances, but they admit they "no longer argue about how many shirts a man has washed on a business trip as was once upon a time the case."

- A majority of the companies allow entertainment expenses, but the attitude of some goes like this: "While we recognize that entertainment expenses are necessary these days, we do not approve of them. We merely condone . . . and do not encourage it."

MANAGEMENT BRIEFS

Pay boost: Between July 1953 and Apr. 1, 1954, raises were given to about half of 1,300 below-the-top executives surveyed by American Management Assn. Figures released this week showed an average boost of 8.4% of base pay among the fortunates.

Outside salesmen can be treated like anybody else in pension plans. That's the 64-page conclusion drawn from a survey of 508 companies employing 56,000 salesmen, made by the Bureau of Business Research at Ohio State for the National Sales Executives. About half the companies pension their salesmen, and another 20% intend to.

J. H. Whitney & Co., venture capital firm organized in 1946 by John Hay Whitney, is entering the television broadcasting field. Last week it announced purchase for \$4-million of station KOTV (Channel 6) in Tulsa, Okla. Whitney & Co. also has majority investments in Spencer Chemical Co., Minute Maid Corp., Great Northern Paper Co., and Morton Packing Co.



Air Conditioning Will Help You Add-Up More Profits

By attracting more trade, getting customers to stay longer, and to buy more. Your staff is more alert, more loyal.

Frick air conditioning, whether as a packaged unit or a central system, will bring you these and other advantages. Our engineers are unbiased in recommending the equipment you need: we make both unit conditioners and custom-built systems.

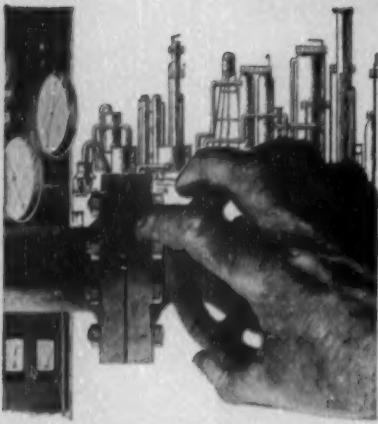


Frick Unit Conditioner, located in a closet, cools two rooms in this motel restaurant. Note air diffusers built into ceiling. Return air is drawn into duct built into fireplace.

The unit shown is one of four installed at the Bankers Trust Company, Indianapolis, by Hayes Brothers, Inc., Frick Distributors there and at South Bend.

Get an estimate from your nearest Frick man, or write for Bul. 522. Be ready to add to your profits when warm weather hits!





how to repeat a master touch

an electronic answer to process control

"The master touch" by which a process achieves a perfect result may be a lucky combination of temperatures, pressures, agitation, timed feeding of ingredients and numerous other variables. But the desired results could be achieved every time — provided an exact process pattern could be fed to electronic controls.

Ampex recordings provide a "perfect memory" — Practically any chemical, metallurgical or manufacturing process can be "remembered" intact on magnetic tape by an Ampex Recorder. Any likely number of variables can be recorded concurrently and with high accuracy. They occupy parallel channels on a single width of magnetic tape; timing and synchronization are inherently perfect.

The Ampex playback can actuate any reaction — From this magnetic tape, the process is "played back" as a pattern of electrical signals. These can operate valves, thermostats or pressure controls and can run motors, adjust speeds or control any other necessary mechanical or electrical responses. Thus a magnetic tape can repeat any process sequence that previously achieved a successful result, controlling it more closely than even a standby operator.

Wherever you control a sequence of operations, magnetic tape may achieve important advantages. For further information, write today to Dept. S-1447

AMPEX
CORPORATION

AMPEX CORPORATION

934 Charter Street • Redwood City, Calif.
Branch offices: New York, Chicago, Atlanta, San Francisco and College Park, Maryland (Washington D.C. area).

Distributors: Radio Shack, Boston; Bing Crosby Enterprise, Los Angeles; Southwestern Engineering & Equipment, Dallas and Houston; Canadian General Electric Company, Canada.

GOVERNMENT

Stepping Up Surplus Sales

- Defense Dept. is digging harder into a \$10-billion pile left over from the Korean war.
- At the same time, GSA is riding herd on the brass to see that useful items aren't sold.
- Businessmen can find bargains at the surplus sales, but they have to keep their eyes open, too.

Uncle Sam is cleaning out his attic this spring. Almost every week, there's a military surplus sale somewhere in the country as the Defense Dept. digs into a \$10-billion accumulation from the Korean war.

The \$10-billion refers to original cost. In the case of munitions, original cost has little connection with what the items bring at auction. Many surplus goods, such as tanks, guns, and planes, are salable only as scrap. Even when the items are more readily usable by the general public, the armed forces are lucky if they can get 10¢ on the dollar.

On the Block — The average businessman has small use for a tank or a gun or a plane, but some of the mechanism can be salvaged for other purposes. The armed forces are cannibalizing surplus weapons for equipment of this sort. They are also taking more pains to collect assortments of stuff that interests the businessman.

Last month, for example, the Army auctioned off \$8-million worth (original cost) of surplus at its Columbus (Ohio) general depot: automotive and materials handling equipment, industrial machine parts and components, instruments, small tools and hardware, electrical supplies, clothing, and office and kitchen equipment. The sale yielded about \$640,000—8¢ on the dollar of original cost.

This week, at Cheli Air Force Base, Maywood, Calif., the Air Force sold \$3-million worth of field equipment (ranges, oil burners, etc.), electrical and plumbing supplies, clothing, containers, trucks, and fork-lifts.

Two sales with even bigger original costs involved are on the docket:

• Apr. 19 to 21, at Sharpe General Depot, Lathrop, Calif., the Army will offer \$12-million worth of vehicles, boats, clothing, spare parts.

• May 4 to 6, at the Naval Advance Supply Depot, Port Hueneme, Calif., the Navy will put up \$10-million worth of construction equipment, vehicles, and repair parts for industrial equipment.

Operation Clean Sweep — The Pentagon started its Operation Clean Sweep last fall as a step to better military housekeeping. This is part of a new emphasis on surplus disposal throughout the Administration, but it is by far the biggest part. Defense Dept. has 90% of all government surplus.

Last year the armed services put a "surplus" tag on \$1.2-billion worth of equipment. This was twice as much as in 1952, more than three times as much as in 1951. In the current year, \$3-billion worth of goods will get tagged for disposal.

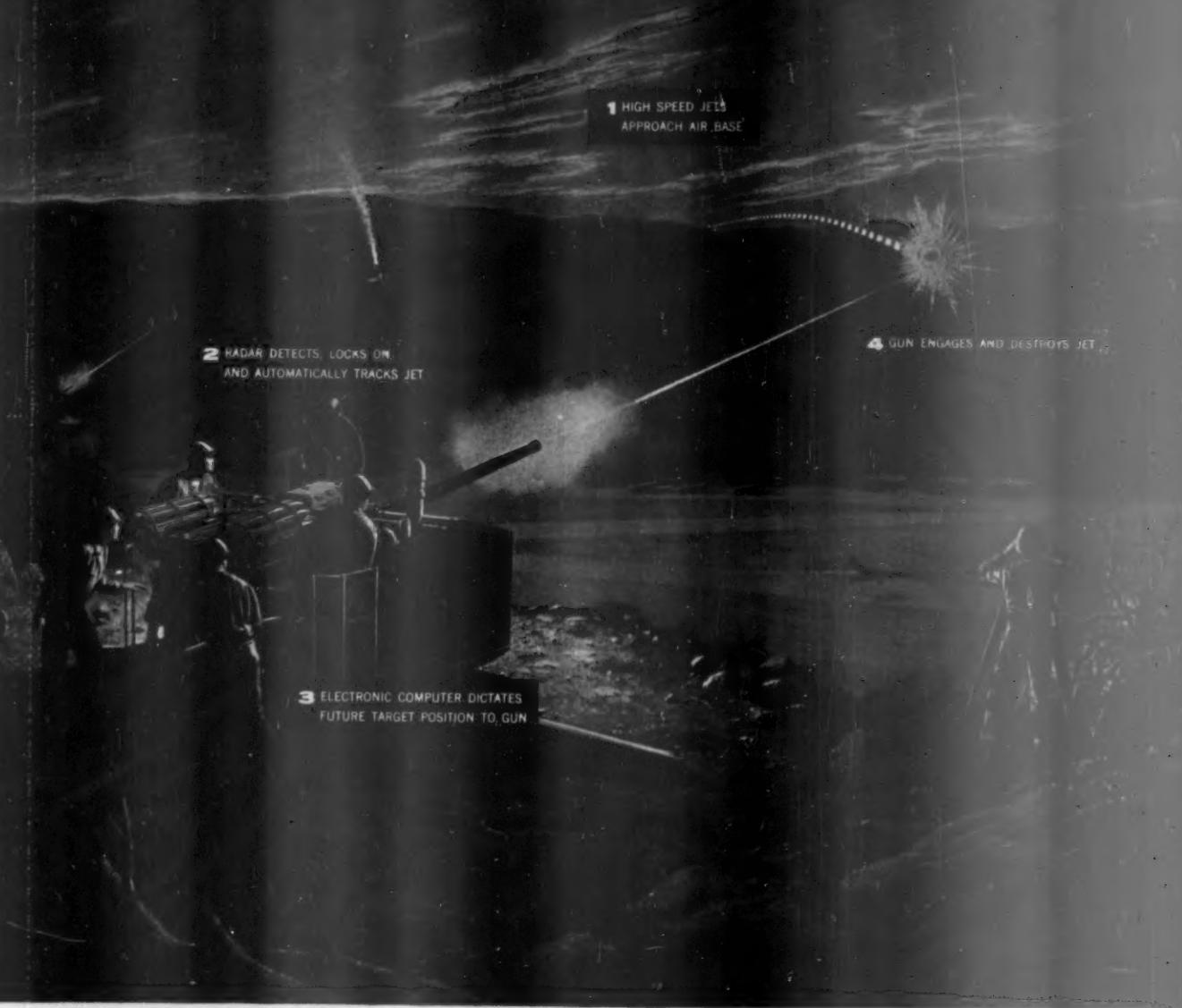
Sales last year brought \$52-million for military goods that had cost \$702-million, new.

Not Like Other Wars — Even the billions in new cost now going into the surplus category are puny compared with the volume of surplus disposal after World War II. That time, the War Assets Administration disposed of property that had an original value of more than \$27-billion. But much more than half of WAA's wares was in real estate; the current round of surplus sales doesn't deal much with that.

Slowdown — In its haste to wield the broom, the Defense Dept. has bumped into the General Services Administration, which is charged by law with co-ordinating federal supply matters. GSA thinks the Pentagon is too quick to declare equipment surplus and get rid of it. GSA wants to be sure the equipment can't get used elsewhere in the government before it is offered.

The way it works in practice, though, the Defense Dept. submits to GSA a list of only about 15% of its military surplus. This includes the general-use items that would be most likely in demand by civilian agencies. Even on these, GSA's screening is limited to 90 days, after which the military can go ahead and sell. Formerly, GSA had virtually no limit on time in which to lay claim to military items. Even so, the Pentagon still complains that GSA slows the cleanup.

Coordinating — GSA's aim, of course,



Army Unveils Skysweeper...

Deadly Accurate Anti-Aircraft Gun

THE STORY BEHIND THE STORY:

■ "HOW CAN WE stop hostile jets that slip through our primary defenses?" News-men covering Army Ordnance's demonstration of the Skysweeper saw the answer to attack by high-speed aircraft at medium range—and spread the story over front pages from coast to coast. It was the story of a gun that could "see" through fog and darkness . . . pick out an enemy within a 15-mile radius . . .

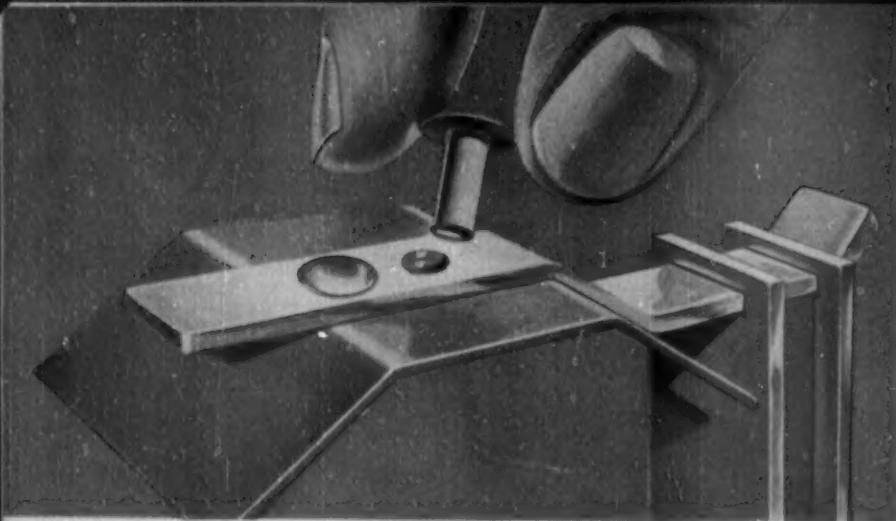
compute its speed, altitude and course in seconds . . . then, automatically aiming itself, shoot the plane out of the sky.

■ Actually the story began when Army Ordnance anticipated the threat of faster flying jets and started to work with Sperry on the problem. Through its pioneering in radar, Sperry engineers were able to design the "eyes" of needed performance. From Sperry's experience in electronics came the "brains" to compute precise firing information. Sperry's developments in servo mechanisms provided the "muscles" for rapid aiming and firing.

■ The Skysweeper gunfire control system which resulted from the cooperative efforts of Army Ordnance and Sperry is typical of the many systems which Sperry has developed working with various branches of the military to meet critical needs. Once developed, Sperry manufacturing specialists convert engineering designs into precision weapons for large scale production. Among similar projects at Sperry today are systems for bombing and navigation, missile guidance and naval gunfire control.

SPERRY GYROSCOPE COMPANY

DIVISION OF THE SPERRY CORPORATION • GREATNECK, N.Y.



You Enjoy The Economy Of Quality With Townsend Tubular Rivets

If you use tubular rivets in your assembly operations you know that uniform physical properties and accurate dimensions are essential to efficient operation. We, at Townsend, know it too. That is why wire of the proper grade and analysis is drawn to specifications in our own wire mill to assure positive control of the quality you enjoy when using Townsend tubular rivets.

Since tubular rivets are set with comparatively little pressure, they are often used in materials which cannot stand the impact required to set solid rivets. In these cases the uniform ductility of Townsend tubular rivets is doubly important.

Townsend tubular rivets feed readily into any make of automatic machine—may also be set easily by hand. Their appearance is good—adds to the attractiveness of your product. They weigh less than many other types of fasteners—reduce product weight.

The majority of Townsend semi-tubular rivets are made with an extruded hole which is tapered. When set, there is more material in the clinched end which produces great holding power and develops a shear strength comparable to other fasteners.

Townsend tubular rivets are used extensively in the electrical industry for assembling radio and television sets—in the automotive industry to assure safe, positive fastening of lining to brake shoes—in the furniture industry and many others where quick, secure, economical assembly is desired. These rivets are available in a wide range of sizes in steel, brass, aluminum and copper.

In addition to being the world's largest manufacturer of a complete line of rivets, Townsend has become known as "The Fastening Authority"—has developed special skills and accumulated experience in assembling products of metal, wood, plastics, fabrics and glass. This knowledge enables Townsend engineers to help select or design the fastener best suited to your product and assembly methods. They have over 10,000 special and standard items to draw upon. Also, Townsend's tremendous capacity of 60-million pieces daily is your assurance that delivery will keep pace with your production. You can depend upon Townsend as a reliable source of quality fasteners at a reasonable cost. To enjoy the economy of quality—specify Townsend fasteners.

is to cut down the amount of stuff that one government agency is selling as surplus on the one hand while another government agency is buying it new—at new prices—on the other hand.

In the halls of GSA you can hear criticism that the military people are going hog-wild on clearing out surplus, just to cut inventories and gain storage space. GSA points to the civilian agencies as examples of how orderly a surplus disposal can be.

In the past two years, civilian agencies declared \$885-million worth of material surplus. Of this, \$68-million worth was transferred by CSA from one agency that didn't need the stuff to another agency that did, and \$39-million worth was donated to local communities for school or public health use. GSA latched onto some material for storage in its own central warehouses pending later reissue. The rest—now down to \$580-million worth—was sold.

GSA administrator Edmund F. Mansure says that fuller use of goods already owned by the government can theoretically cut new purchases by around \$136-million. This sum would buy two years' supply of standard housekeeping items that GSA issues to government agencies.

- **New Setup**—Like other agencies, the Defense Dept. is revamping its procedures to keep closer control on purchasing and inventory. The idea is to cut down the need for future surplus disposal on a large scale.

The Defense Dept. is setting up an advisory board of 10 merchandising executives to help on surplus disposal. It also has plans for a training school for both civilian and military disposal officers. Each service has a special assignment in this training project: the Air Force, details of the program; the Navy, ways of disposing of surplus; the Army, incentives to interest in buying the material.

Besides, the Pentagon has its own system of screening material that is declared surplus by any military installation. Uses of the excess stuff are sought in other military quarters before disposal is considered.

- **How It's Sold**—The Defense Dept. uses four methods to dispose of surplus property:

- Competitive sealed bids, used for large lots. Bidders must deposit 20% of bid value after they inspect the property.

- Spot bids, used for smaller lots. No deposits are required.

- Public auctions, used for the biggest disposals. This method is being used more frequently.

- Negotiated sales, used sparingly for perishable goods or for items that have a limited market.

- **How to Find Out**—With the number of government sales increasing all the

Townsend

COMPANY • ESTABLISHED 1816

NEW BRIGHTON, PENNSYLVANIA

Sales Offices in Principal Cities

Cherry River Division • Santa Ana, California

THE FASTENING AUTHORITY—**Experience:** over 138 years—**Capacity:** sixty-million parts daily—**Products:** over ten-thousand types of solid rivets—cold-headed parts—Cherry Blind Rivets—Twifast Screws—self-tapping screws—tubular rivets—locknuts—special nails—formed wire parts.

Plants: New Brighton, Pa.—Chicago, Ill.—Plymouth, Mich.—Santa Ana, Calif.

In Canada: Parmenter & Bullock Manufacturing Company, Ltd., Gananoque, Ontario

time, the businessman finds it harder to keep track of what's going on. The surplus is displayed and sold at military posts all over the country. The best way to know about these sales is to get on the mailing lists to receive announcements.

You can do this by writing to property disposal officers at the six Army continental command headquarters, at the Navy in Washington, D. C., and at the Air Materiel Command, Wright-Patterson Field, Dayton, Ohio.

If CSA has its way, a consolidated listing of surplus sales may be available soon. The agency wants to add these announcements to Commerce Dept.'s daily Synopsis of Government Proposed Procurement and Contract Awards.

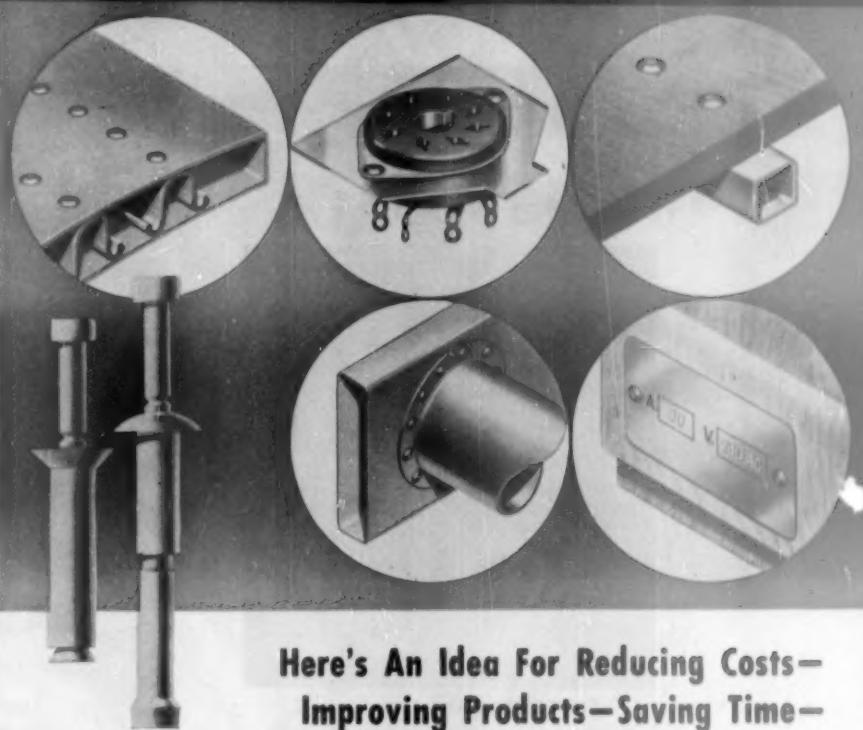
- **Making Sense**—You have to take the surplus listings with a grain of salt. Stuff is marked at its new acquisition cost, not its resale value. You can't tell, for example, if the \$1-million worth of Army blankets on the list are new blankets in their original cartons or material so worn out that it is good only for wiping cloths or for scrap.

The new Hoover Commission on organization of the executive branch of government has a nine-man task force trying to make sense out of surplus property operations. Gen. Robert E. Wood, board chairman of Sears, Roebuck & Co., heads this group.



Customs' Simplifier

Ralph Kelly, new Commissioner of Customs, will take on one of the hottest issues in Washington, if Congress passes the Eisenhower-backed program for freer trade (BW-Apr. 3 '54, p28). One of Kelly's first jobs would be to change the method of evaluating imports for duty assessment and clear away a lot of the red tape in present customs' laws. Kelly, a Philadelphia industrialist, succeeds Frank Dow.



Here's An Idea For Reducing Costs— Improving Products—Saving Time— **Use Cherry Blind Rivets**

To reduce unit costs, save assembly time and improve product design may sound like a big order for a fastener but that's exactly what Cherry Blind Rivets are doing today for many manufacturers. This is the rivet that is installed by one man from one side of the work—economically and quickly. There is no bucking—no hammering—no twisting—no exploding. Cherry Rivets are used in double-surfaced structures, box sections, tubes, ducts, and other hard-to-reach places.

Several factors reduce unit costs. To begin with, one man is eliminated from the rivet crew. Also, material spoilage is reduced because Cherry Rivets are installed by a pulling action—the gun won't mar surfaces or shatter brittle materials with violent blows. Often jigs and assembly procedures are simplified when set up for Cherry rivet-

ing. Because the process is fast, units move quickly along assembly lines—bottlenecks are eliminated.

Designers specify Cherry Rivets because they are not hampered by blind spots—can employ modern contours and a wide variety of materials. This latitude enables them to improve product appearance and salability. Other advantages—they pull up tight, resist vibration, eliminate nuts, bolts, and washers—provide a tamper-proof fastening because they are permanent. Cherry Rivets are widely used in maintenance work too, since they often eliminate need to tear down entire areas of equipment to repair small sections.

For information on how you can use Cherry Rivets in your operations to reduce costs, improve products, and save time, fill in the coupon below or write for 12-page bulletin.

Townsend

COMPANY • ESTABLISHED 1816

NEW BRIGHTON, PENNSYLVANIA

Sales Offices in Principal Cities

Country Store Distributors, Salesmen, Contractors

In Canada: Forrester & Bullock Manufacturing Company, Ltd., Guelph, Ontario

TOWNSEND COMPANY

Sales Department
New Brighton, Pa.

Please send without obligation Cherry Blind Rivet Bulletin TL-76.

Name _____ Title _____

Company _____

Street _____

City _____ Zone _____ State _____

FINANCE

The Fighters:

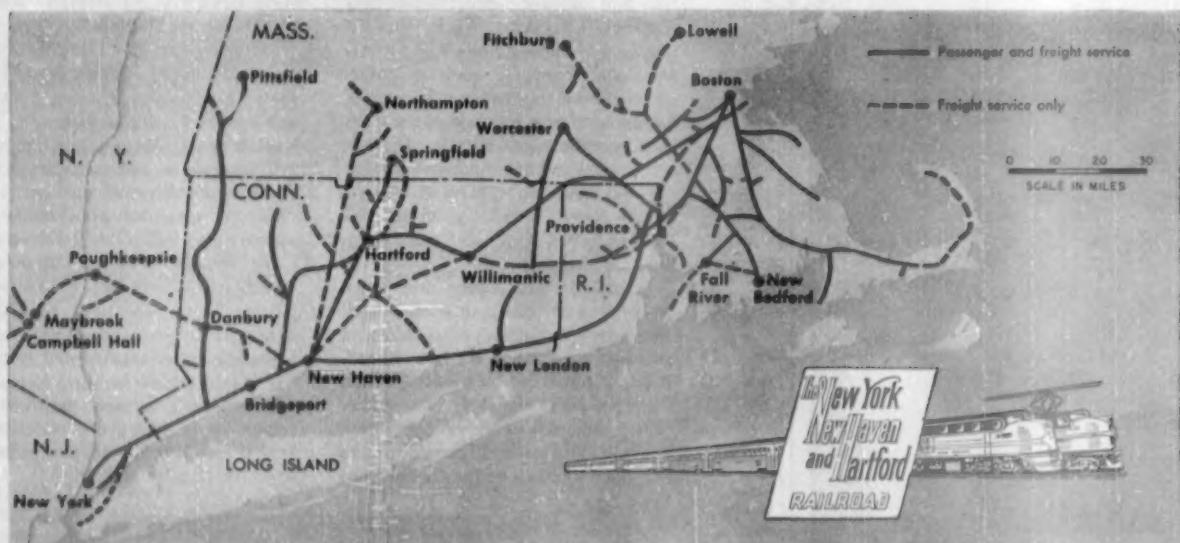


The Challenger:
Wall Street's P. B. (Pat) McGinnis



The Present Champ:
President F. C. (Buck) Dumaine

The Prize:



It's an Old-Fashioned Free-for-All

The boxing business has a rough new competitor. In fact, it has been years since even Madison Square Garden could put on a scrap so fierce, or for so big a purse, as the gaudy free-for-alls now raging in the railroad business.

Main attraction in the rail rough-and-tumbles is the battle for control of the \$2-billion properties that make the New York Central the nation's sec-

ond biggest rail line (BW—Feb. 20 '54, p28). There will be never a dull moment until the votes are finally counted at the Central's stockholder meeting on May 26.

But there's plenty to be said for another, less publicized bout—if you like the finer points of corporate pugilism. This vicious 15-rounder will settle control of the \$425-million assets of the

New York, New Haven & Hartford RR, the lifeline of New England.

- **Sluggers**—Unlike the Central's brawl, the New Haven battle is "in the family"—the principals and most of the seconds were all members of the fighting stable of the late Frederic C. Dumaine, Sr., and like many a family feud, it's one of the bitterest on record.

The sluggers in the New Haven ring



Articles of Value ...

Strange and wonderful are the contents of a small boy's pockets.

And valuable, too . . . Nails to fasten things together, string for a tin can "telephone", an oddly shaped stone (maybe it's lucky), pictures for trading with other boys, a cricket in a matchbox to show to Johnnie next door.

Grown-ups can't appreciate such valuables. They have no way of measuring their worth.

Industry has similar problems in valuation. Take, for example, a public utility. What is the present worth of all its property . . . of the million-and-one items that make up its plant and equipment?

Who is better fitted to find an accurate answer to such a question than the engineer? He, better than anyone else, can tell the worth of a dam, a pumping station, a power

plant . . . for it was the engineer who designed them in the first place . . . just as he designed the equipment that takes the water, the gas, the power where it is needed, and created the appliances that put them to use.

Valuation surveys, which form the basis for fair rate regulation, are but one of the many services the engineer performs for public utilities and the ultimate consumer. From the engineer come the facts that clear the way for final collaboration between owner, regulatory commission and consumer.

Because of the engineer, we can live in tomorrow's world today . . . a world where pennies work miracles . . . a world where we can lift a finger and quench our thirst from a mountain stream; turn a valve and cook our meals; twist a dial and talk to a neighbor; touch a button and shatter the dark.



Gannett Fleming Corddry and Carpenter, Inc.

HARRISBURG · PENNSYLVANIA

PITTSBURGH, PHILADELPHIA, DAYTONA BEACH

Engineers

3 DISCS
and
33½ rpm*
make this
MORE THAN
the finest dictating
instrument
FOR YOU!

Mail Chute Disc,
3⅞" diam., 15 minutes

Dictation Disc,
5⅜" diam., 30 minutes

Memo Disc,
3" diam., 8 minutes



Sound • Scriber

DICTATING

Trade Mark

EQUIPMENT

WORLD'S MOST VERSATILE
COMMUNICATIONS AID

- ✓ Lightest all-purpose recorder
- ✓ On-the-Disc Instructions
- ✓ 50% Easier to Use
- ✓ Disc-on-Disc Recording
- ✓ Tone-Color Quality
- ✓ Disc Play on Standard 33½ Phonograph

SoundScriber Corp., Dept. E-4,
New Haven 4, Conn.

Please send sample Disc and info.

Name _____
Company _____
Address _____

Also send information on
SoundScriber Remote Dictation

don't have a bred-in-the-bone railroader in the lot. Most of them came into the business only a few years ago.

• **In This Corner**—The group now in control, and hanging on for dear life, is headed by Frederic C. (Buck) Dumaine, Jr. He's the only son of the New England industrialist who, six years ago, snatched control of the railroad from the "outlanders" who had taken over after the road emerged from bankruptcy (BW-Jul.24'48,p80). Most of Buck Dumaine's down-to-earth railroading has been learned since then—first as his father's top aide, and as president since the senior Dumaine died three years ago.

The opposition is headed by Patrick B. (Pat) McGinnis, a Wall Streeter turned railroader. For years McGinnis was one of the Street's best known analysts of rail securities, but it was only after World War II that he became an active railroader, running the Norfolk & Southern and the Central of Georgia systems.

McGinnis is generally credited with having engineered the coup by which the elder Dumaine captured the New Haven. Now, the thousands of shares that he and his associates bought to bolster the coup threaten to topple Buck Dumaine from his inherited throne.

• **Weighing In**—The latest published claims give this estimate of the strength of the Dumaine faction:

• The Dumaine family directly or indirectly controls 273,399 shares of New Haven common and preferred, which have equal voting power. That's about 28%.

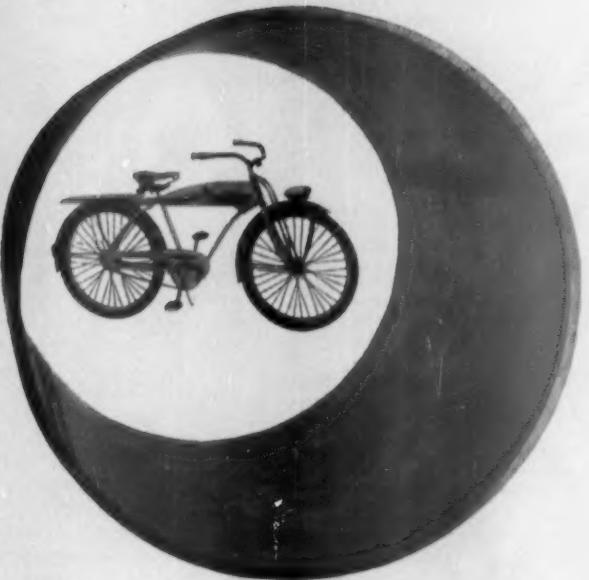
• Dumaine counts as certain the proxies of friendly stockholders to a total of about 175,000 shares.

• He expects to get at least half of the proxies for the 175,000 shares now held beneficially by brokers in street name.

Adding all this up, Dumaine says he can't be licked when the tellers finish their job at the railroad's annual meeting on Apr. 14.

McGinnis and his group are just as confident. They maintain that they hold 30% of all shares, and are certain to win at least 11 of the 21 directors to be elected at the meeting. They base this claim on the cumulative voting system by which each share can cast its vote for each of 21 directors, or if so desired 21 votes for any one candidate.

• **Falling Out**—Dumaine and McGinnis offer widely differing explanations of how they came to fall out. To Dumaine, the answer is simple: "I'm boss, and Pat wants to be boss." The McGinnis version is more complicated: "In railroading, as in other businesses, the test of management is profit . . . and the present management of the



Picture your product in Armco Steel Tubing

If you are looking for new ways to help step up sales, Armco Steel Tubing may be your answer. It can give your product that eye-catching modern look . . . make it lighter, stronger, and more functional, too!

The cost? With strong, lightweight Armco Tubing, you can simplify design, perhaps reduce manufac-

ting costs to price your product more competitively.

There are many standard and special shapes of Armco Steel Tubing to choose from. Ask your designer to write for our booklet, "Armco Welded Steel Tubing." If you wish, a Tubing Specialist will help you select the best size and shape for your product.

ARMCO STEEL CORPORATION

MIDDLETOWN, OHIO • EXPORT: THE ARMCO INTERNATIONAL CORPORATION



Faultless

CASTER

MATERIALS HANDLING
FACTS

Douglas Aircraft Co., Tulsa, Oklahoma
solves tough materials handling problems



Delicate Douglas
testing instruments are
"elevated" over
rough areas on Series
SH300 Double-
Action Spring Casters
with puncture-proof,
pneumatic wheels. Casters
absorb impact shocks
through use of large, dur-
able springs under
constant compression. Load
rides at constant level.

Illustrated above is the Douglas Flowrator, mobile unit used to test installations in planes. This sensitive test equipment is moved speedily and safely over uneven floor areas—inside and out-of-doors on Faultless Casters. Production costs are cut at testing locations because readjustment of the gauges is unnecessary. Equipment arrives ready for immediate use.

The problem of safely holding heavy Douglas engine dollies securely in place during work is positively accomplished with Faultless All-Steel Floor Truck Locks. The steel brake disc has a universal joint to assure a firm, flat contact even when floor surface is not level.



The FTI is locked and released by stepping down on separate pedals. Each action is positive, easy.

Each month the solution to a real materials handling problem is fully presented in a free, handy size folder. To get the complete story on the Douglas caster application mentioned above, simply call your local Faultless Caster Distributor listed in your phone directory. Or write us today.

Faultless CASTER CORPORATION, EVANSVILLE 7, IND.
Making Casters for more than 64 years.
Branches in Principal Cities • See phone directory

New Haven . . . has failed utterly to meet this basic test."

McGinnis admits that the road has reported profits each year under Dumaine management, but he claims that virtually all the profit has come from realty interests. The rail part of the business, he says, has been dragging its feet more and more each year, with working capital dropping to an alarming degree and only the preferred stockholders getting any return on their money. McGinnis sees himself as the man to put new blood in management and "to restore the New Haven's credit and operating efficiency."

Arguments—Both sides have been bombarding stockholders with assorted arguments. Dumaine has explained at length how he has (1) chopped at costs; (2) modernized facilities; (3) completely dieselized and electrified the property; (4) torn up unneeded track and rebuilt miles of worn roadbed; and (5) sold off unneeded property, using the proceeds to buy new rolling stock, motive power, and other facilities.

McGinnis goes along with the Dumaine claim that "today you must spend money to make money." But he adds that the spending done by Buck Dumaine has done little to produce either gross profits or net revenues.

The Railroad—On the whole, Wall Street rail analysts think the younger Dumaine hasn't done too bad a job in his period of control. The chances are that a majority of them lately have been advising stockholders to tag along with management. At the same time, the analysts have no illusions about the economic health of the New Haven. Few of them these days advise clients to invest (some call it gamble) on the road's common or preferred shares. They argue this way:

- New England just doesn't have the stuff that fattens railroads fast. For example, it originates no traffic in steel, coal, ore, brick, bulk grain, or lumber.

- Distances are unusually short between the road's producing areas and its consumer markets. That makes it very vulnerable to highway competition; and it means complicated, expensive operations.

- Passenger traffic, which is rarely much of a profit-maker, accounts for a bigger share of the New Haven's gross than it does for most major carriers. On top of that, a considerable part of the passenger traffic is made up of commuters, a notoriously unprofitable breed.

- **Best Face**—The printed matter with which both sides have been deluging the stockholders has, of course, sought to put the best possible face on matters.

Thus Dumaine implied to the flock that the New Haven came out of reorganization in relatively poor shape,

that "it had to be rebuilt substantially in order to restore its earning power." But dissenters argued that the trustees had actually gone in heavily for modernization, spending over \$121-million compared with the \$69-million put out by the subsequent management up to the end of last year. Railroad Age wrote at the end of the reorganization that it would be hard to find a major railroad better transformed to meet its special problems.

Dumaine has also said that "the railroad was still 45% steam-powered" when the reorganization was effected. But the opposition argues that in December of that year, only 15% of the line's freight ton miles and 25% of its passenger miles were handled by steam. And the dissenters say that the pre-Dumaine private management, in its year of control, sold over \$32-million of equipment trust issues to pay for new equipment that it ordered. The orders included 116 diesel units, compared with the 278 the road owned at the end of 1948 and the 372 it reported at the end of 1952.

- **Debt Reduction**—Dumaine has also pointed with pride to debt reductions since mid-1948, notably the paying off of \$12.8-million of bonds within weeks of the time the family management took over. However, some Wall Streeters say that the payments were simply carrying out the intentions of the previous management, which had earmarked for the purpose a big share of the huge cash holding with which the line emerged from bankruptcy.

Among the securities listed by the Dumaine regime to make up its claimed \$50.6-million total debt reduction are \$26-million in bonds that were issued—but never sold—to secure the \$12.8-million bond issue that was so promptly retired. If that \$26-million is deducted, McGinnis' side points out, the debt slash looks much less impressive.

- **McGinnis' Turn**—The arguments presented by the McGinnis side are, naturally, not kind to the Dumaine management. Tables purporting to show the poorness of New Haven operating ratios of late are sometimes abbreviated. Thus, certain ratios of such giants as the Pennsy and the New York Central are cited only in the instances where they look better than the New Haven's.

McGinnis also stresses the elder Dumaine's purge of the New Haven's experienced top brass (BW-Sep. 2/50, p64), claiming that it resulted in a "management . . . totally incapable in railroad affairs." But McGinnis is not on record as having protested at the time of the purge, though he is believed to have been just as big a stockholder as he is now, and was a man highly esteemed by the elder Dumaine.

McGinnis' own railroad career has

HOW XEROGRAPHY CUTS DUPLICATING COSTS

*Speeds
paper work duplicating
in 15 field locations...*

Jones & Laughlin Steel Corporation, world's fourth largest steel maker, uses the xerography process to prepare offset paper masters for duplicating thousands of forms needed to carry out the vast paperwork requirements of its business.

With the XeroX-Multilith combination, general forms used at the various locations are prepared in the Pittsburgh General Office. Forms used only at one location are prepared locally. XeroX® copying equipment is used for preparing paper masters and Multilith Process Duplicators are used for quantity duplication of forms. Jones & Laughlin estimates savings of over \$100,000 a year compared with former methods.

Anything written, typed, drawn or printed can be reproduced with photographic accuracy in about 3 minutes onto an offset paper master for run off of multiple copies on an offset duplicator. Original copy may be enlarged, reduced or reproduced same size by xerography in XeroX® Lith-Master® copying equipment. With xerography, copies can be

JONES & LAUGHLIN
estimates yearly
savings of over **\$100,000**

made from one or both sides of original material.

For use in diazo type machines, translucent intermediates can be made from any original subject in the same speedy way.

There is no limit to the versatility of the dry, electrostatic, direct positive xerography process in paperwork duplicating applications for companies of all kinds, large or small.

*A trademark of The Haloid Company

WRITE for 12-page Jones & Laughlin Report, also "proof of performance" folders showing how companies of all kinds are cutting costs and saving time with xerography. For instance: Xerography helps Glens Falls Group maintain up-to-date directory of 11,000 agents and saves \$10,000 a year.

SOME USERS IN DIFFERENT FIELDS

AIRCRAFT

Bell Aircraft Corporation

BUILDING MATERIALS

National Gypsum Company

CHEMICAL

Ethyl Corporation

EDUCATION

University of Rochester

INSURANCE

Glens Falls Group

MANUFACTURING

Taylor Instrument Companies

RETAIL

H. L. Green Co., Inc.

TRANSPORTATION

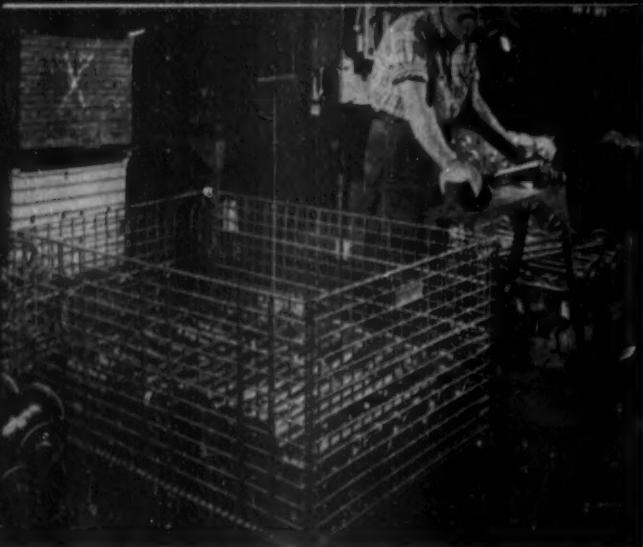
Braniff Airways

THE HALOID COMPANY
54-67X HALOID STREET • ROCHESTER 3, N. Y. • Branch Offices in Principal U. S. Cities and Toronto

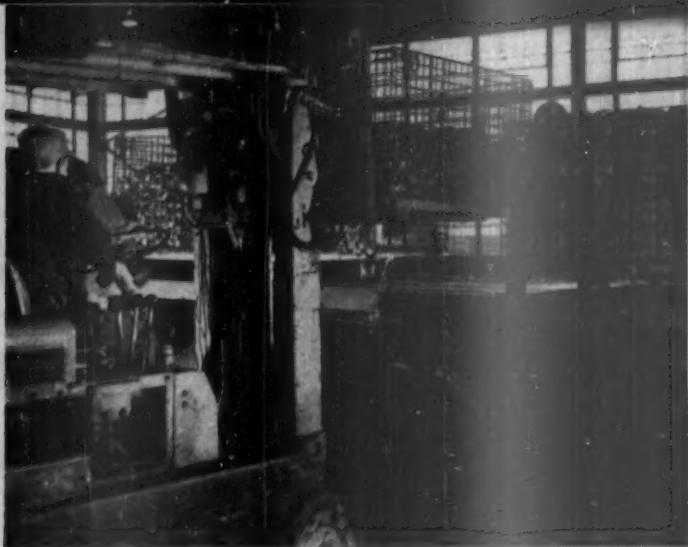
XEROGRAPHY

The fastest, cheapest, most versatile way to make masters for duplicating





Rear axles being inspected and loaded into Cargotainer at Ford's forge plant, Canton, Ohio. Then forgings are . . .



Loaded for haul to Ford's Mound Road Plant, Detroit. Specially designed fabricated steel legs on Cargotainer permit firm grip by chain.

How Cargotainers® Speed Parts Transportation, Reduce Handling Costs At

Ford, which has the reputation of giving auto buyers their money's worth, must keep alert to every new cost-saving development in manufacturing and distribution. One of the important phases of manufacturing that gets a lot of

attention at Ford is the job of handling and transporting the multitude of parts from the various Ford plants and suppliers that must be in the right places at the right time.

Soon after the collapsible wire-

mesh container was introduced to American industry, Ford materials-handling engineers began experimenting with this new, lightweight, heavy-duty, folding, stackable, steel-wire box.

Today, thousands of collapsible wire-mesh containers are at work for Ford helping speed transportation of parts, saving storage space, and reducing damage and handling costs.

The collapsible wire-mesh container was adopted by Ford engineers as a standard primarily for shipments by common carrier because of its light weight, durability (5,000 lb. capacity), freight advantage, visibility of contents and collapsible features.

Ford has developed and built its efficient materials-handling system around three basic types of containers: (1) the collapsible wire-mesh containers, (2) tubular steel racks, and (3) corrugated metal bin boxes. More than 85,000 of these containers costing some \$3 million are used in inter-plant movements.



Cargotainers placed on adjustable, inclinable stands enable machine operators to feed forgings into production lines without making a needless move.



Unloaded quickly and easily, moved to production lines, axles begin machining and finishing operations, the first of which is to . . .



Cut the driving slot in flanged end of axle. From here, the axle goes on a conveyor line for other finishing operations.

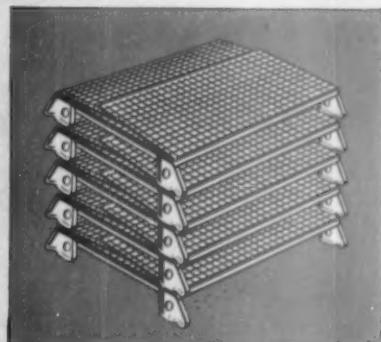
Save Space, Ford Motor Company

Cargotainers, because they can be quickly and easily stacked, also provide greater flexibility for parts storage between shipments. Storage areas can be quickly rearranged or relocated overnight. This is particularly important to Ford with model changeovers coming along frequently.

Mechanical unit loading of Cargotainers drastically reduces manual handling of parts. This not only reduces costs, but reduces material damage resulting from careless handling. It increases safety, provides visual inventory

and improves housekeeping.

Cargotainers are adaptable to all types of mechanized equipment such as fork trucks, platform trucks, straddle trucks or overhead cranes. A wide range of models are now in use by many of America's blue-chip manufacturers. For complete information regarding Cargotainers and pallets, write for your free copy of a new brochure "Wire Cargotainers and Pallets" or ask to have a materials-handling engineer call and discuss your problem without obligation.



Five folded cargotainers occupy the space of one unfolded. They stack firmly and easily—are practically self-cleaning because there is little place for dirt to collect.

Pittsburgh Steel Products Company

a subsidiary of

Pittsburgh Steel Company

Grant Building · Pittsburgh 30, Pa.

"Everything New But The Name"



—Send for complete information!—

Pittsburgh Steel Products Co.
1405 Grant Building
Pittsburgh 30, Pa.

Gentlemen:

Please send at once a copy of your free booklet "Wire Cargotainers and Pallets."

Name _____

Title _____

Company _____

Address _____



sometime,
somewhere,
you've been
seated by Royal

Metal furniture since '37

At sometime, in an industrial cafeteria, reception room, executive office, general office, employee lounge, store, shop or showroom, hotel or restaurant or perhaps in a hospital, you've been seated by Royal. Look to Royal for the ultimate in economy, beauty and comfort... your only single source for over 150 metal furniture items. Write for literature.



Visitors' Reception Room, Parks, Davis & Co., Detroit, Mich.

ROYAL METAL MANUFACTURING COMPANY

175 North Michigan Avenue, Chicago 1, Illinois Dept. 44
Factories: Los Angeles • Michigan City, Ind. • Warren, Pa. • Walden, N.Y. • Galt, Ont.
Showrooms: Chicago • Los Angeles • San Francisco • New York City

not been without its squalls. Last month the Interstate Commerce Commission released a 108-page report blistering the former Norfolk & Southern management that he had headed. ICC said the management wastefully handled the road's funds in salaries, expenses, fees, and other practices that violated the "letter and spirit" of its regulations. ICC did not recommend punitive action, but indicated that its findings were likely to lead to a tightening of the regulations.

FINANCE BRIEFS

National commercial banks in New York State may use the words "saving" or "savings" to describe their services, the U.S. Supreme Court ruled this week, in an 8-to-1 decision. A state banking law had limited use of the terms to savings banks and savings and loan associations; commercial banks had been forced to refer to their accounts as "thrift" or "compound interest."

The New Jersey legislature introduced a resolution to invite the New York Stock Exchange to move across the Hudson River to escape current city taxes as well as the proposed 3% sales tax on brokers' commissions. Exchange President G. Keith Funston termed the resolution "interesting," recalled plans for a similar move back in 1933.

Investors balked at accepting a 2.90% yield on \$30-million of Houston Lighting & Power Co. mortgage bonds. As a result, the syndicate underwriting the issue was dissolved, with only a third of the issue sold. When the news became public, price in the over-the-counter market fell 102.189% to 100.857% of par, 1½ points under the offering price.

Dividends on Foster Wheeler Corp. common stock may soon be resumed, according to President Earle W. Mills. The last dividend was paid in June 1952. Since then, payments on the common have been negated by terms of a \$6-million short-term loan, which has since been whittled down to about \$2-million.

Schenley Industries earnings dipped over the six-month period ending Feb. 28, despite an increase in the company's domestic whiskey sales. Net after taxes was down to \$1.9-million for the six months, equal to 44¢ a share. For the same period last year, net was \$4.9-million, or \$1.12 per share. Despite the drop, the usual 50¢ quarterly dividend was declared.

Why does one fabric offer so much more?



One answer: versatility. Masslenn non-woven fabric is soft and absorbent . . . can be coated or flocked; processed and finished; made flame and water resistant. Masslenn non-woven fabric has unlimited possibilities — can be custom made to suit your requirements.

Meet Masslenn® non-woven fabric



CHICOPEE MILLS, Inc., Dept. BWW, 47 Worth Street, N.Y. 13, N.Y.

Back to Roost

Alleghany may have to take—at \$25—the New York Central shares it once sold to C&O for \$19-minus.

Robert R. Young's battle for control of the New York Central RR took a tricky new bounce this week.

Wall Street learned that the Young-controlled Alleghany Corp. might end up owning a big chunk of the 800,000 Central shares that were sold recently by the Chesapeake & Ohio Ry. to two friends of Young's—Texas oil tycoons Clinton W. Murchison and Sidney W. Richardson (BW-Mar. 6 '54, p26).

That possibility became evident when it was revealed that on Mar. 15 Alleghany Corp. had lent \$5-million to Murchison and \$2.5-million to Richardson for six months. What's more, Alleghany said that the Texans could repay the loans either in cash or "provided in part that certain joint venture agreements are entered into prior thereto"—by turning over Central stock at \$25 a share. That's the price that Murchison and Richardson had paid C&O for the stock.

Cynics in the Street point out that Alleghany is quite likely to end up holding 300,000 of the Central shares, 37% of the original purchase from Chessie, unless Central stock perks up on the market.

Right now, the shares are selling at around \$23.50, which would seem to make it advisable for Murchison and Richardson to use the \$25-a-share loan repayment as an out.

• **Earlier Sales**—Alleghany stockholders—other than Young—might view such a deal with a jaundiced eye. That's because Alleghany years ago had bought 400,000 of the 800,000 Central shares for less than \$19 a share. Then Alleghany, which controlled C&O at the time, sold the shares to Chessie for the same \$19-minus.

News of the Murchison-Richardson loan deal sounded fine to William White, the Central's beleaguered president. White had earlier asked the Interstate Commerce Commission to investigate the sale of Central stock.

Now he feels that the loan confirms "the continuing relationship between Alleghany and Young on one hand and Chesapeake on the other."

• **Transfer**—White also announced this week that the Central, which acts as its own transfer agent, had not yet transferred the 800,000 shares to Murchison and Richardson. "Outside counsel have advised us," White said, "that the transfer certificate they filed is defective."



● 410 level acres adjacent to Savannah & Atlanta Railway on navigable river (34 ft. channel) well above maximum flood contour of river.

● Located 6 miles north of Savannah, Georgia.

● Vigorous industrial and consumer markets nearby.

● Ample electric power and natural gas available.

● Fast, dependable rail and water transportation to all markets via Savannah & Atlanta and Central of Georgia Railroads. All-diesel freight service between principal communities of the Southeast, connecting with 15 major railroads.

If you're in chemicals or an allied field, this choice site is made to order. Full, detailed information and maps are available from your Savannah & Atlanta and Central of Georgia Industrial Location Specialist. All inquiries handled in strict confidence! Today, call, write or wire your nearest Industrial Location Office listed at right.



WRITE for 32-page brochure showing this river site and others now available with exceptionally desirable features.

INDUSTRIAL DEVELOPMENT DEPARTMENT

SAVANNAH & ATLANTA RAILWAY
CENTRAL OF GEORGIA RAILWAY
630 Fifth Avenue, New York 20, New York
501 Rhodes Hwy Building, Atlanta 3, Ga.





HANDLES ALL INSIDE CALLS ...and does it handsomely

Your city-phone switchboard is free and clear—customers can reach you instantly—you get maximum business efficiency—when you use TWO communication systems . . . (1) SELECT-O-PHONE to handle all inside traffic and keep your (2) city-phone system free for those profitable incoming-outgoing calls so vital to your success!



Automatic SELECT-O-PHONE goes direct—requires no operator—gives you instant "priority service" to any part of office or plant. You hold quick conferences—conversations are always private. All stations call each other at the quick flick of a dial.



New SELECT-O-PHONE INSTRUMENT, America's most attractive inside phone, is handsome evidence of continued progress and leadership by Kellogg Intercommunication Systems! Completely new—features instant-action dial and ringing button—complimentary brown finish enhances any desk!

FAST! . . . AUTOMATIC! . . . GUARANTEED! KELLOGG INTERCOMMUNICATION SYSTEMS FOR ANY BUSINESS, ANY BUDGET.



KELLOGG SELECT-O-PHONE—serves one to 55 stations. Saves time, steps, money!



KELLOGG RELAYMATIC—for systems requiring more than 55 stations. Provides for any future expansion!

Available through Kellogg's nationwide dealer service organization. Your dealer will gladly survey your inside communication problem, without obligation. Get action—send coupon today!

KELLOGG

Intercommunication Systems

The Inside Voice of Business

KELLOGG SWITCHBOARD AND SUPPLY CO.
A Division of International Telephone
and Telegraph Corporation

Kellogg Switchboard and Supply Company
Commercial Products, Dept. 31-D-2
79 West Monroe St.
Chicago 3, Illinois

Show us how we can save time and money with A
KELLOGG INTERCOMMUNICATION SYSTEM.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

The 1953 Billion Dollar Club

IN ASSETS:

	ASSETS AS OF Dec. 31, 1953	ASSETS AS OF Dec. 31, 1939	% GROWTH SINCE 1939
Bell Telephone System	\$11,973	\$3,286	264.4
Standard Oil Co. (N.J.)	5,372	2,035	164.0
General Motors Corp.	4,405	1,323	233.0
U.S. Steel Corp.	3,247	1,769	83.6
Pennsylvania R.R.	2,505	2,037	23.0
Sociony-Vacuum Oil Co.	2,154	925	132.9
Standard Oil Co. (Ind.)	2,036	723	181.6
New York Central R.R.	1,992	1,631	22.1
Southern Pacific System	1,982	1,698	16.7
E. I. du Pont de Nemours & Co.	1,846	736	150.8
Texas Co.	1,805	661	173.1
Bethlehem Steel Corp.	1,783	733	143.2
Gulf Oil Co.	1,766	523	237.7
Ford Motor Co.	1,757	692	153.9
General Electric Co.	1,697	392	332.9
Pacific Gas & Electric Co.	1,620	657	150.4
Standard Oil Co. (Cal.)	1,535	625	145.6
Consolidated Edison Co. (N.Y.)	1,509	1,023	47.5
Atchison, Topeka & Santa Fe Ry.	1,499	1,116	34.3
Sears, Roebuck & Co.	1,388	324	328.4
Union Pacific R.R.	1,346	1,101	22.3
Baltimore & Ohio R.R.	1,309	1,110	17.9
Westinghouse Electric Corp.	1,265	217	482.9
Union Carbide & Carbon Co.	1,191	337	253.4
Humble Oil Co.	1,186	375	216.3
Commonwealth Edison Co.	1,167	717	62.8
Sinclair Oil Co.	1,141	353	223.2
Cities Service Co.	1,103	②	②
Phillips Petroleum Co.	1,039	223	365.9

IN SALES:

	SALES OR REVENUES 1953	SALES OR REVENUES 1939	% GROWTH SINCE 1939
General Motors Corp.	\$10,028	\$1,377	628.2
Bell Telephone System	4,429	1,107	300.1
Standard Oil Co. (N.J.)	4,270	934	357.2
U. S. Steel Corp.	3,853	904	326.2
Great Atlantic & Pacific Tea Co.	3,756	990	279.4
Chrysler Corp.	3,348	550	508.7
General Electric Co.	3,128	396	689.1
Sears, Roebuck & Co.	2,982	617	383.3
Swift & Co.	2,597	757	243.1
Armour & Co.	2,089	715	192.2
Bethlehem Steel Corp.	2,082	414	402.9
E. I. du Pont de Nemours & Co.	1,765	299	490.3
Safeway Stores, Inc.	1,752	386	353.9
Standard Oil Co. (Ind.)	1,709	344	396.8
Gulf Oil Co.	1,641	277	492.4
Sociony-Vacuum Oil Co.	1,607	496	224.0
Westinghouse Electric Corp.	1,582	175	804.0
Texas Co.	1,559	365	327.1
Shell Oil Co.	1,269	248	411.7
International Harvester Co.	1,256	267	370.4
National Dairy Products	1,232	337	265.6
Goodyear Tire & Rubber	1,210	200	505.0
Republic Steel Corp.	1,145	232	393.5
J. C. Penney Co.	1,109	282	293.3
American Tobacco Co.	1,088	262	315.3
Standard Oil Co. (Cal.)	1,080	178	506.7
Kroger Co.	1,059	243	335.8
Pennsylvania R.R.	1,034	431	139.9
Firestone Tire & Rubber	1,029	160	543.1
Union Carbide & Carbon Co.	1,026	188	448.7
Humble Oil Co.	1,024	199	413.6
Ford Motor Co.	④	④	④

New Members.

On comparable figures available for 1939.

Figures years ended February, 1953 and 1940.

①Does not report sales, but is in billion class.

NEW PATTERNS FOR PROFITS



Could Your Construction Business Make Extra Profits by Building Reinforced Plastic Panel Garages, Patios?

Car sheiters and patios are in tremendous demand . . . because so many lower and middle-income housing developments were originally built without garages. And new homes can be made more saleable, more attractive with a colorful garage and patio combination.

Here are a dozen (only 10 pictured) new, different garages; car ports, car-port enclosures—designed, planned, with a list of materials—ready to build. All of them use the new, fibrous glass-reinforced plastic building panels available now in every section of the country. These strong, rotproof, weatherproof panels have hundreds of uses . . . but few as amazing as

"upgrading" a garage into a colorful, more useful asset to property value. Translucent panels are available in a score of colors. With these illustrated designs, you can SHOW home owners how their car port, car-port enclosure, single or double garage, garage-patio combination will actually look. Then you can pre-cut material for dozens . . . and secure extra orders for every one you build.

For a builder's portfolio containing all 12 illustrated plans, send a check for \$3.00 to Monsanto Chemical Company, Texas City, Texas. A list of panel manufacturers and their panel specifications is available on request.

Monsanto is a major producer of STYRENE MONOMER, FUMARIC

ACID, MALEIC and PHTHALIC ANHYDRIDES . . . basic chemicals used in the manufacture of polyester resins. Translucent building panels are just one of hundreds of products made of polyester resin and fibrous glass. For more information on how these laminates can be used in general manufacturing . . . write MONSANTO CHEMICAL COMPANY, PLASTICS DIVISION, TEXAS CITY, TEXAS.



SERVING INDUSTRY...WHICH SERVES MANKIND

NEW!

conpor KILLS LEAKS

*most important development
in sealing and packing material
since the invention of the oil seal*

Conpor is the result of a six-year development program. It is specially tanned Sirvis leathers, impregnated with liquid polymers, to provide assured control of porosity. Conpor has all the advantages of leather—flexibility, strength, stability, and oil and solvent resistance; it permits lubrication through the seal or packing member—with a controlled porosity range of from zero to 100%. Eighteen months of field experience and hundreds of tests run by C/R's Engineering Department have established beyond doubt the extreme superiority of Conpor impregnations over any other leather sealing member presently available.

conpor *now you know the seven advantages*

- Complete leakage control.
- Less shaft scoring from oil seals.
- Designing for lower torque.
- Reduced original costs in most cases.
- A stable material with broad resistance factors.
- Many times the service life of previous leathers.
- Better lubrication control at points of friction.



Send for this! "Report on Conpor" gives all basic information on this vital new material. Our engineering service will be glad to work with you in developing Conpor sealing products for your applications. Write: Mr. A. S. Berens, Chicago Rawhide Manufacturing Co., 900 North State, Elgin, Illinois.



CHICAGO RAWHIDE MANUFACTURING COMPANY

900 North State CONPOR DIVISION Elgin, Illinois

Representatives in these Principal Cities: BOSTON • NEW YORK • SYRACUSE • BUFFALO • PHILADELPHIA • PITTSBURGH • CINCINNATI • CLEVELAND
DETROIT • PEORIA • MINNEAPOLIS • WICHITA • TULSA • HOUSTON • LOS ANGELES • SAN FRANCISCO • SEATTLE

Other C/R products

OIL SEALS: Shaft and end face seals for all types of lubricant retention and dirt exclusion • SIRVENE (Synthetic rubber) diaphragms, boots, gaskets, and similar parts for critical operating conditions • SIRVIS: Mechanical leather packings and related products.

POLITICS

PRIMARY ELECTIONS

The Time Table

All House Seats Are at Stake

And in the Senate

Date	State	These are now GOP	These are now Dem.	These senators are up for reelection	Their primary opposition
Apr. 13	Illinois	16	9	Douglas (D)	none
Apr. 20	New Jersey	8	6	Hendrickson (R)	not running
May 4	Alabama	0	9	Sparkman (D)	heavy
May 4	Florida	0	8	.....	.....
May 4	New Mexico	0	2	Anderson (D)	none
May 4	Ohio	16	6	Burke (D)	none
May 4	Indiana	10	1	.....	.....
May 18	Pennsylvania	19	11	.....	.....
May 21	Oregon	4	0	Cordon (R)	none
May 29	North Carolina	1	11	Lennon (D)	heavy
June 1	Nevada	1	0	.....	.....
June 1	South Dakota	2	0	Mundt (R)	none yet
June 7	Iowa	8	0	Gillette (D)	none
June 8	California	19	11	Kuchel (R)	none yet
June 21	Maine	3	0	Smith (R)	light
June 28	Maryland	4	3	.....	.....
June 29	North Dakota	2	0	.....	.....
July 6	Oklahoma	1	5	Kerr (D)	heavy
July 13	South Carolina	0	6	Maybank (D)	.....
July 13	Virginia	3	7	Robertson (D)	none
July 20	Montana	1	1	Murray (D)	none yet
July 24	Texas	0	22	Johnson (D)	taken
July 27	Louisiana	0	8	Ellender (D)	light
Aug. 3	Kansas	5	1	Schoeppe (R)	none
Aug. 3	Michigan	13	5	Ferguson (R)	none yet
Aug. 3	Missouri	4	7	.....	.....
Aug. 3	West Virginia	1	5	Neely (D)	none yet
Aug. 5	Tennessee	2	7	Kefauver (D)	heavy
Aug. 7	Kentucky	2	6	Cooper (R)	none yet
Aug. 10	Arkansas	0	6	McClellan (D)	heavy
Aug. 10	Idaho	1	1	Dworshak (R)	none
Aug. 10	Nebraska	4	0	Griswold (R)	none
Aug. 17	Wyoming	1	0	Hunt (D)	none yet
Aug. 24	Mississippi	0	6	Eastland (D)	heavy
Sept. 7	Arizona	1	1	.....	.....
Sept. 8	Georgia	0	10	Russell (D)	none yet
Sept. 14	Colorado	2	2	Johnson (D)	not running
Sept. 14	Massachusetts	8	6	Saltonstall (R)	none
Sept. 14	Minnesota	5	4	Humphrey (D)	none yet
Sept. 14	New Hampshire	2	0	Bridges (R)	none
Sept. 14	New York	27	16	Upton (R)	heavy
Sept. 14	Utah	2	0	.....	.....
Sept. 14	Vermont	1	0	.....	.....
Sept. 14	Washington	6	1	.....	.....
Sept. 14	Wisconsin	8	2	.....	.....
Sept. 20 & 29	Rhode Island	0	2	Green (D)	none yet

The Race Is On

Illinois primary next week sets off months of hot fighting keyed to business trend and Congress control.

In politics, as in business, spring is a season of hope. Politically, the arrival of spring signalizes the advent of primary elections. For politicians hopeful of plucking the fruits of statesmanship in the fall, the political primary is an ever-beckoning will-o'-the-wisp. Most of their hopes are scattered with the late spring blossom storms or wither in the early fall frosts.

• **Lead-Off**—As the table on this page shows, primary time is again upon the country. The nation's first primary election will be held in Illinois next Tuesday. The political lures are as strong as ever: No fewer than 10 Republicans are vying for the opportunity of opposing Democratic Sen. Paul Douglas in November.

In races for the Illinois seats in the House of Representatives, four Republican veterans who hold committee chairmanships will have to fight from one to three candidates apiece: Rules Chairman Leo Allen of Galena, Foreign Affairs Chairman Robert Chipley of Canton, Un-American Activities Chairman Harold Velde of Pekin, and Judiciary Chairman Chauncey Reed of West Chicago.

New Jersey will follow Illinois by a week, and from then on there will be a steady procession. The table at the left lists the 46 states that have set the dates for their primary contests; the other two—Connecticut and Delaware—have not yet fixed the time.

• **One-Party**—Primary fights are a usual thing in one-party states—in the solid Democratic South or in safe Republican areas in New England. In such places the primary is the "main event." Nomination, as the politicians say, is tantamount to election. Often these are so heatedly contested that a second or runoff primary is necessary to choose between the two top candidates. It looks this year as if several southern states will have such tough battles that there will have to be runoff primaries.

• **Close**—Because of the close alignment in both Senate and House, the 1954 nominating primaries will have added significance. Both parties will try to get top-caliber vote-getters into the race in an effort to move into a commanding majority.

The business turndown is, right now,



keep time-

**with the best!
positive proof...**

STROMBERG

Today's biggest value in an electric time recorder is this Stromberg 14. It is built better, works easier, lasts longer and is low priced. It's the timing answer for every size and type of business.

I get your copy of
"for every working minute"
write to

STROMBERG
TIME CORPORATION

GT
GENERAL TIME
subsidiary of general time corp.
THOMASTON
CONNECTICUT

TIME RECORDERS
TIME STAMPS

TIME STAMPS
CLOCK SYSTEMS

the biggest issue facing the sitting congressmen, with the farm decline taking first place, of course, in the farm areas. To the distress of Republicans, the areas hardest hit now have Republican majorities in their congressional representation.

Take these eight states: Illinois, Indiana, Michigan, Ohio, New Jersey, New York, Pennsylvania, and Wisconsin. They are among the hardest hit in unemployment, and the Republicans have 120 members of Congress in these states, the Democrats only 54.

With the 435 House seats split up among 219 Republicans, 215 Democrats and one Independent, a few shifts could put the House under new management. There are 88 so-called marginal seats in the House—those won in the last election by 5% or less.

• **Line-Up**—The Democrats have let it be known that they expect to pick up upward of 40 seats in November.

The Republicans are making President Eisenhower and his program their big issue. They boast that enough of his program will be enacted this session to make it a campaign asset. There is no sign, however, that the Republicans will concentrate on nominating pro-Eisenhower candidates. Right now, they are getting behind any Republican who looks as if he can get elected and help insure organization of Congress by the GOP. Speaker Joseph Martin claims the GOP will pick up around 45 seats.

• **Hot Spots**—In the Senate, 35 seats are up for election—22 Democratic and 13 Republican. (In addition to those in the table on page 65, Democrat J. Allen Frear, Jr., of Delaware, is up for reelection.) Of the 22 Democrats, at least six appear to be facing tough nomination fights.

Sen. John Sparkman of Alabama is pitted against Rep. Laurie Battle on May 4. Battle is reminding conservative Alabamans of Sparkman's liberal campaign speeches as running mate of Adlai Stevenson in 1952. It looks like a rough and close fight ahead.

Other Democrats likely to have a rough time:

• Sen. John McClellan of Arkansas will have a hard fight if former Gov. Sid McMath gets into the race.

• Sen. Alton Lennon of North Carolina—appointed to fill the unexpired term of the late Sen. Willis Smith—is right now the underdog in his race against former Gov. Kerr Scott. Scott built up a wide following as commissioner of agriculture and later enlarged upon it with a rural road-building program as governor.

• Sen. Robert S. Kerr of Oklahoma will be pitted in a battle of millionaires against former Gov. Roy Turner.

• Sen. James Eastland of Mississippi faces rugged opposition from Lt.

Gov. Carroll Gartin, who is popular throughout the state and has the backing of the governor.

• Sen. Estes Kefauver of Tennessee—the TV crime buster and presidential aspirant—is in for a fight with Rep. Pat Sutton of the Sixth District. Sutton votes conservatively and will make an issue of Kefauver's liberal voting record.

• **Republicans**—On the other side of the chamber, only two Senate Republicans have primary opposition in sight:

• Sen. Margaret Chase Smith of Maine will have a primary fight despite the fact that six months ago in endorsing her candidacy Gov. Burton Cross observed that "no sane man" would run against the only woman serving in U.S. Senate. Robert Jones, secretary to former Sen. Owen Brewster of Maine and later to Sen. Charles Potter of Michigan, has filed, and gives signs of making McCarthyism the issue.

• Sen. Robert W. Upton of New Hampshire—appointed to fill the unexpired term of the late Sen. Charles Tobey—faces an uphill fight against popular Wesley Powell.

• **Illinois Again**—In Illinois the feeling that liberal Democratic Sen. Paul Douglas was a pushover was credited with bringing 11 Republicans into the race against him. That was last fall. Now the picture has improved for Douglas and a hot race is in prospect.

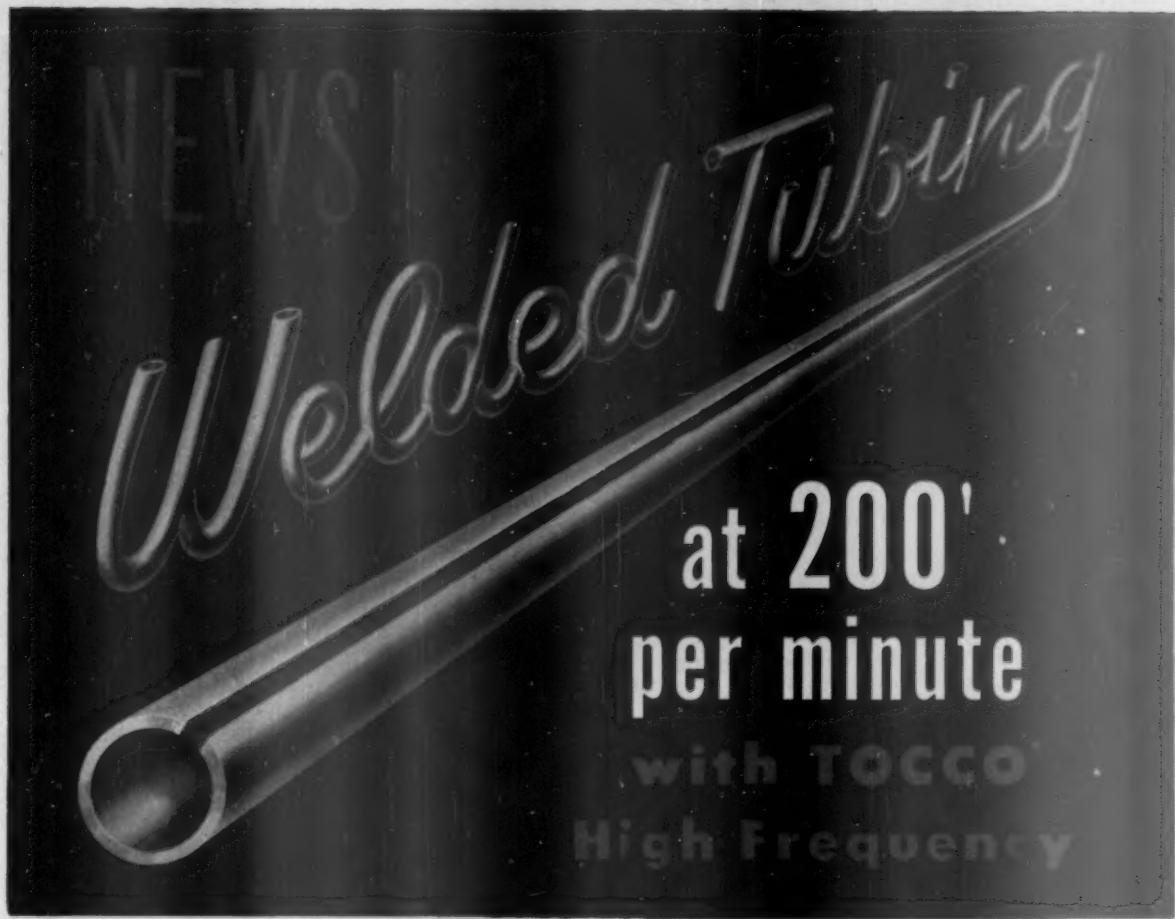
Despite the 10 GOP candidates, the race really is between two men: Edward A. Hayes, former American Legion national commander, and Joseph T. Meek, president of the Illinois Federation of Retail Assns.

• **Out of It**—Two incumbent senators have decided they have had enough.

In the New Jersey primary on April 20, former Rep. Clifford Case of the Sixth District has no primary opposition since Sen. Robert Hendrickson decided not to seek reelection. Case is one of the most popular vote-getters in New Jersey and his presence in the race is expected to strengthen the GOP ticket all along the line.

The second withdrawal also looks like a good thing for the Republicans. Democratic Sen. Edwin C. Johnson of Colorado announced last week that he would not enter the race for reelection. With Johnson out of the running, the state's Democrats have no strong contender for the post. That gives Republican Gov. Dan Thornton, a solid Eisenhower man, almost a clear field if he runs for senator in November.

• **On and On**—The primary parade led off this month by Illinois and New Jersey will go on through the spring and summer and right up to the end of September. The Republican primary in Rhode Island is held on Sept. 29. That's two weeks after the first general election—in Maine on Sept. 13—and a bare month before the Nov. 2 balloting.



A patented TOCCO Process for ferrous and non-ferrous tubing. Check these advantages.

- ✓ a production speed of 200' per min.
- ✓ lower cost because of increased production and lower maintenance.
- ✓ a smooth, continuous weld—no stitching.
- ✓ an extra strong weld—because it's 100% uniform and continuous.
- ✓ no scaling of ferrous tubing.
- ✓ controlled upset—either I.D. or O.D.—or in some cases none.

Whether it's welding, heat-treating, brazing, melting or heating for forging operations, it pays you to investigate TOCCO Induction Heating as a means to better products, faster and at lower cost.

THE OHIO CRANKSHAFT COMPANY



FREE
BULLETIN

Mail Coupon Today

THE OHIO CRANKSHAFT CO.

Dept. W-4, Cleveland 1, Ohio

Please send copy of "TOCCO Induction Heating"

Name _____

Position _____

Company _____

Address _____

City _____ Zone _____ State _____

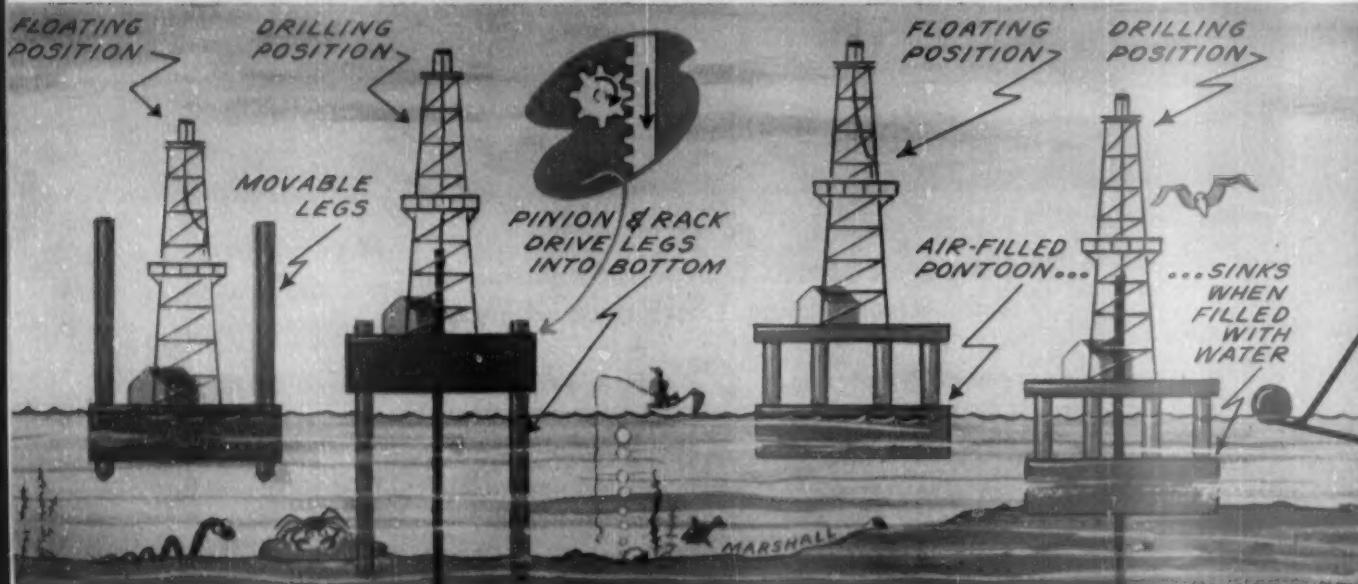
PRODUCTION



To get oil offshore, you have to tote men . . .

. . . and materials . . .

. . . to million-dollar



For a more portable rig, you can prop it up on legs or support it by a hull that sinks . . .

Offshore Oil: Strange New Rigs

You can mix oil and water, but it isn't cheap or easy. The oil industry finds it must improvise, innovate, and spend a lot of money as it goes to sea for the offshore oil of the Gulf Coast.

When you sail offshore to drill for oil, you have all the hazards and un-

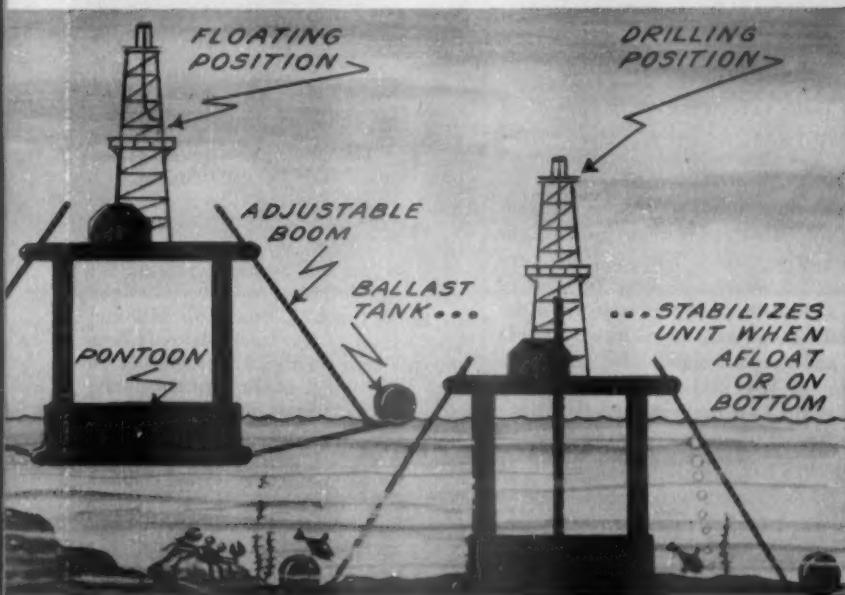
certainties of drilling on land, plus the perils of the sea and the problem of supplying your seagoing crews. You have to hire nautical know-how along with geological and mechanical skills. Thus, oil companies in the Southwest are advertising more and more for ma-

rine engineers and designers. One Tulsa company has two retired rear admirals on its payroll.

The greatest puzzle of all for offshore oil drillers is the drill rig. Companies are still looking for the ideal design that will permit (1) drilling in



platforms like this, maybe 10 mi. out in the Gulf of Mexico.



... or give it wing flaps and pontoons for greater stability.

Go Down into the Sea

water more than 40 ft. deep, and (2) wildcatting without having to tie up millions of dollars in huge, stationary platforms.

As the drawings (above) show, designs are coming out fast, and the oil industry is hopeful of finding the ideal.

So far, though, drillers are usually limited to 40-ft. depth of water. Occasionally a big platform is built in 65 feet of water.

• **Rich Potential**—No one knows how much oil lies under the offshore waters of the Gulf Coast and California. But

To add the ingredients of success always depend on

ENJAY

Petroleum Chemicals



In Surface Coatings...



In Petroleum...



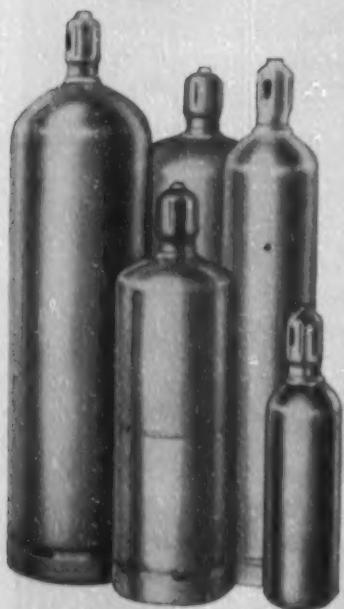
In Chemicals

ENJAY

34 years of leadership in surface coatings with complete line of quality petroleum chemicals.

ENJAY COMPANY, INC.

Here's What you CAN do about high shipping costs...



You can pare tare weight by shipping compressed gases in Hackney Lightweight Cylinders. You save on out-bound shipments—and on the return of empties as well.

Hackney cylinders are made from selected, high-quality steel that assures light weight and adequate strength. The Hackney process of cold drawing two-piece or entirely seamless cylinders produces uniform sidewall thicknesses and eliminates excess material and excess weight.

Uniform in size and weight, uniformly easy to handle, uniformly durable trip after trip—Hackney Cylinders are made in many sizes—for high-pressure or low-pressure gases of all types.

Write today for additional information,
1493 S. 66th St., Milwaukee 14 • 52 Vanderbilt Avenue, Room 2097, New York 17
• 207 Hanna Bldg., Cleveland 15 • 936 W. Peachtree St., N.W., Room 115, Atlanta 3
• 208 S. LaSalle St., Room 789, Chicago 4
• 555 Roosevelt Bldg., Los Angeles 17 • 18 W. 43rd St., Room 12, Kansas City 11, Mo.
• 137 Wallace Avenue, Downingtown, Pa.



PRESSED STEEL TANK COMPANY

Manufacturer of Hackney Products

DOWNTOWN IRON WORKS, INC., DIVISION
Downingtown, Pennsylvania

CONTAINERS AND PRESSURE VESSELS FOR GASES, LIQUIDS AND SOLIDS

"... it costs two to seven times as much as drilling on dry land ..."

OFFSHORE OIL starts on p. 68

estimates in limited areas have been big enough to get the oil companies excited. They were also big enough to produce the long fight between the federal government and the states over ownership of the tidelands.

For example, a group of 18 geologists are on record with a guess that \$80-billion worth of oil, gas, and sulfur can ultimately be recovered from the Texas tideland area alone. The Texas domain extends 10.35 mi. to sea.

The National Petroleum Council estimates that with normal development in the next five years the daily production of all tidelands areas should reach 170,000 to 200,000 bbl. of oil and 600-million to 800-million cu. ft. of natural gas. This estimate is based largely on operations in water 60 ft. deep or less.

With estimates like these coming out, the oil industry is ready to lay cash on the line—lots of it. When leases on 500,000 acres of Texas offshore land were offered a few months ago, 29 oil companies put in bids. The leases fetched \$32-million. That's big money even by oilmen's reckoning.

• Progress—Offshore oil drilling—delayed by the row between the federal government and the states—has now been under way in the Gulf long enough for some valuable lessons to be learned.

In economics, the sternest lesson has been this: It costs anywhere from two to seven times as much to drill and produce oil in the tidelands as it does on dry land. This cost is murder to the wildcat operations on which oil discovery has always depended—oilmen don't expect to hit paydirt more than once in every nine times.

As for equipment, operators can use drill barges in shallow water, sinking the barges to rest firmly on the bottom while the equipment stays high and dry. After a well has been completed, a barge can be refloated and towed to a new site. But this method is usually limited to about 15 ft. of water.

In deeper water, operators have had to build stationary platforms. Some of these are working as much as 30 mi. off the Gulf Coast, but still in water 65 ft. deep or less.

Typical of these platforms is Humble Oil & Refining Co.'s Grand Isle No. 1, about 8 mi. off the Louisiana coast. It has an acre of floor space on two decks and can drill as many as seven wells at various slants from its location. It cost \$1.2-million, has to be staffed



4 good men on a 1-man job

Three aren't helping much on this valve repair job. They're a good molding press crew with nothing to do because a valve failed. But their time and production loss is raising the cost of this valve mighty high.

Here's one of the reasons for insisting on dependable quality in every valve, no matter how obscure, how seldom operated. Here's where production tallies, as well as maintenance reports, can show the fallacy of buying valves on price alone.

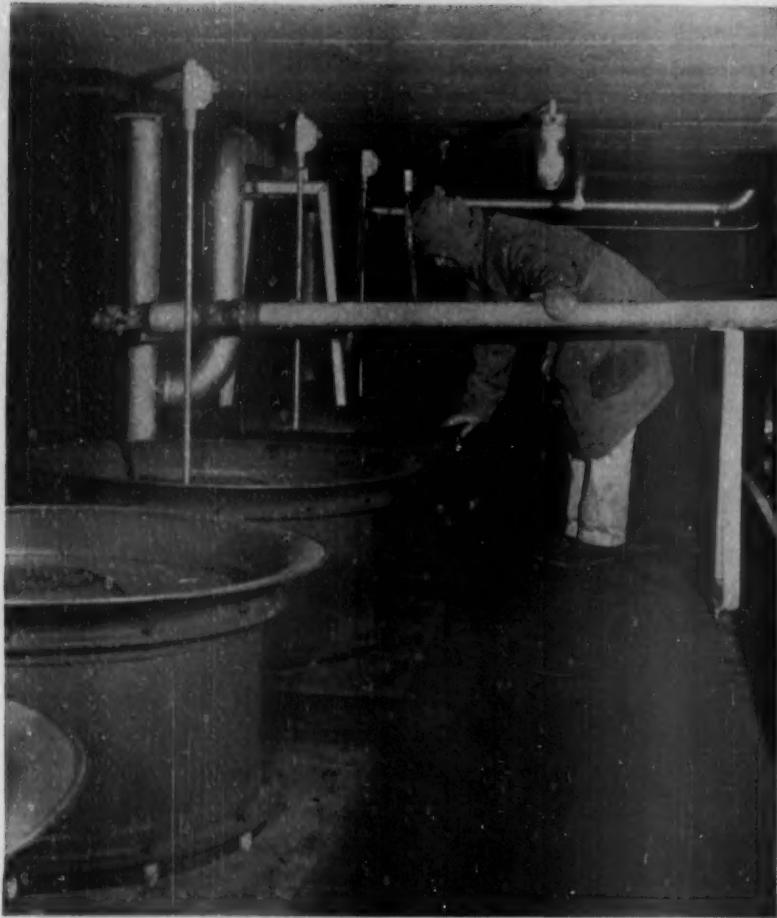
The thrifty buyer knows the risk of sacrificing quality in face of mounting labor costs. He's aware how even brief shutdowns can multiply those high costs fast. He chooses Crane Quality for the assurance it gives of dependability and value in all piping equipment.

Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas.



CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING



HOW WESTINGHOUSE FANS QUICK-FREEZE BERRIES TO MINUS 40°

When the berry packing season starts in Whatcom County, Washington . . . huge (110 ton capacity) freeze tunnels require fast, efficient air movement at 40° below zero . . . operating night and day for 3 solid months.

Baker Cold Storage Company called in the local Westinghouse-Sturtevant sales engineer and found that Westinghouse had the answer.

The result: eight Westinghouse-Sturtevant Axiflo Fans cold-blast the packed fruit with 140,000 cubic feet of air per minute.

This air moving system was originally guaranteed to freeze 46 tons per day . . . now handles 100 tons in a 24 hour day. Westinghouse fans have handled this grueling task with never a let-up for the past 8 seasons.

Whatever your problem in putting air to work, you will find the Westinghouse-Sturtevant sales engineer the most capable man to contact. Call your local Westinghouse-Sturtevant office or write Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Massachusetts.

WESTINGHOUSE AIR HANDLING

----- YOU CAN BE SURE... IF IT'S Westinghouse -----

by a crew of 54 men with supplies enough for two weeks—and it can't be moved elsewhere if its seven drills produce dry holes.

• **Newer Types**—Some companies have managed to get along with smaller platforms, just big enough to hold a derrick and drill machinery. They use tenders, often war surplus naval craft up to LST size, to carry everything else: powerhouse, mud pumps, water storage, cement, crew's quarters.

This arrangement cuts down cost of each platform and gives greater flexibility to offshore operations, with tenders able to move from platform to platform. It's still an expensive way to wildcat.

• **Specifications**—What the industry needs for offshore drilling is a rig that (1) can be moved in most weather conditions, (2) can go into action soon after reaching a new position, (3) is steady enough for drilling in average rough water. It must also be able to ride out the 120-mph. hurricanes and 30-ft. waves in the Gulf 50 mi. out.

Naval architects, shipyards, barge builders, and steel fabricators are all trying to fill these specifications. Most of their designs are still in the cocoon stage, but two or three rigs may be working next fall.

• **Sinkable Barges**—New designs fall into two general classes: barges that sink and barges that are propped up. The barges that sink have a basic difference from the ones already being used in shoal water (center drawing pages 68-69.) Their decks are separable from the main hull and stay on top of the water.

In the sinkable barge category are these projects:

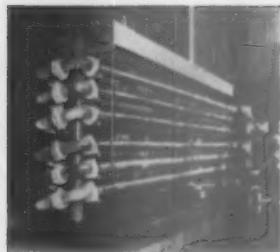
Kerr-McGee Oil Industries, Inc., of Oklahoma City is building a barge that can operate in waters up to 40 ft. deep. A prototype has been in use by Kerr-McGee for several years in 15 ft. to 25 ft. of water. Stabilized by pontoons, the hull is lowered to the bottom while the working platform stays on top. The new unit will cost nearly \$2-million. It has living quarters for 40 men.

Ocean Drilling & Exploration Co. of New Orleans has a design for a similar barge to work in waters up to 40 ft. deep. It claims improved stability, lower center of gravity, by folding the derrick down when not in use and by putting the heavy machinery in the lower compartments.

Southern Production Co. of Baton Rouge also has a design for a barge that can work in 40-ft. depth.

American Tidelands, Inc., expects by November to complete a barge much like the Kerr-McGee unit. It, too, accommodates 40 workers and can operate in water up to 45 ft. deep. It has a landing deck for helicopters.

• **Barges That Prop**—Designs that use



SCALE DEPOSITS which impede heat flow do not form on the hard, smooth inside surface of the PYREX pipe in this heat exchanger.



PYREX brand sight glasses provide visibility plus heat and chemical resistance.

This pipe would last 203 years on a diet of hot hydrochloric acid

Handling corrosive fluids may be forcing you to pay more than your share of industry's \$6,000,000,000 annual bill for the perpetual war against rust.

PYREX brand "Double-Tough" glass pipe can help you cut your corrosion losses.

This pipe carrying 5% hydrochloric acid at 212° F. loses only .0003 inch of its thickness in a year. At that rate it would take over 200 years to eat away 30% of the wall thickness. It would take over 600 years to eat completely through the pipe.

PYREX pipe not only resists eating away by hard-to-handle fluids. It's also easy to flush clean. Even sticky substances and organisms won't adhere to its hard, smooth

surface. Its transparency is often important, too. You can see what's going on inside—spot trouble in the making.

You don't have to worry about breakage. PYREX pipe is called "Double-Tough" because all fittings and flanged ends are tempered. This makes them 2½ to 3 times stronger than ordinary glass.

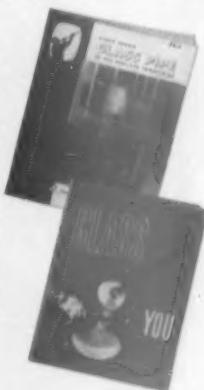
PYREX pipe is only one example of how glass by Corning is aiding industry. If your problem is corrosion—or cleanliness, heat resistance, light transmission, visibility or better looks for your product—consider glass by Corning.

Why not write today and see how glass can help you either as piping or for some other application?

FREE BOOKLETS: Send the coupon or write for copies.

This 16-page booklet, "PYREX brand 'Double-Tough' Glass Pipe in the Process Industries," illustrates the experience of many users.

This new 48-page booklet, "Glass and You," will bring what you know about glass up to date. It may spark a new product or a new production idea.



CORNING GLASS WORKS
CORNING, N. Y.

Corning means research in Glass

CORNING GLASS WORKS, 30-4 Crystal St., Corning, N. Y.
Please send me a copy of "Glass and You" and a copy of "PYREX brand 'Double-Tough' Glass Pipe in the Process Industries."

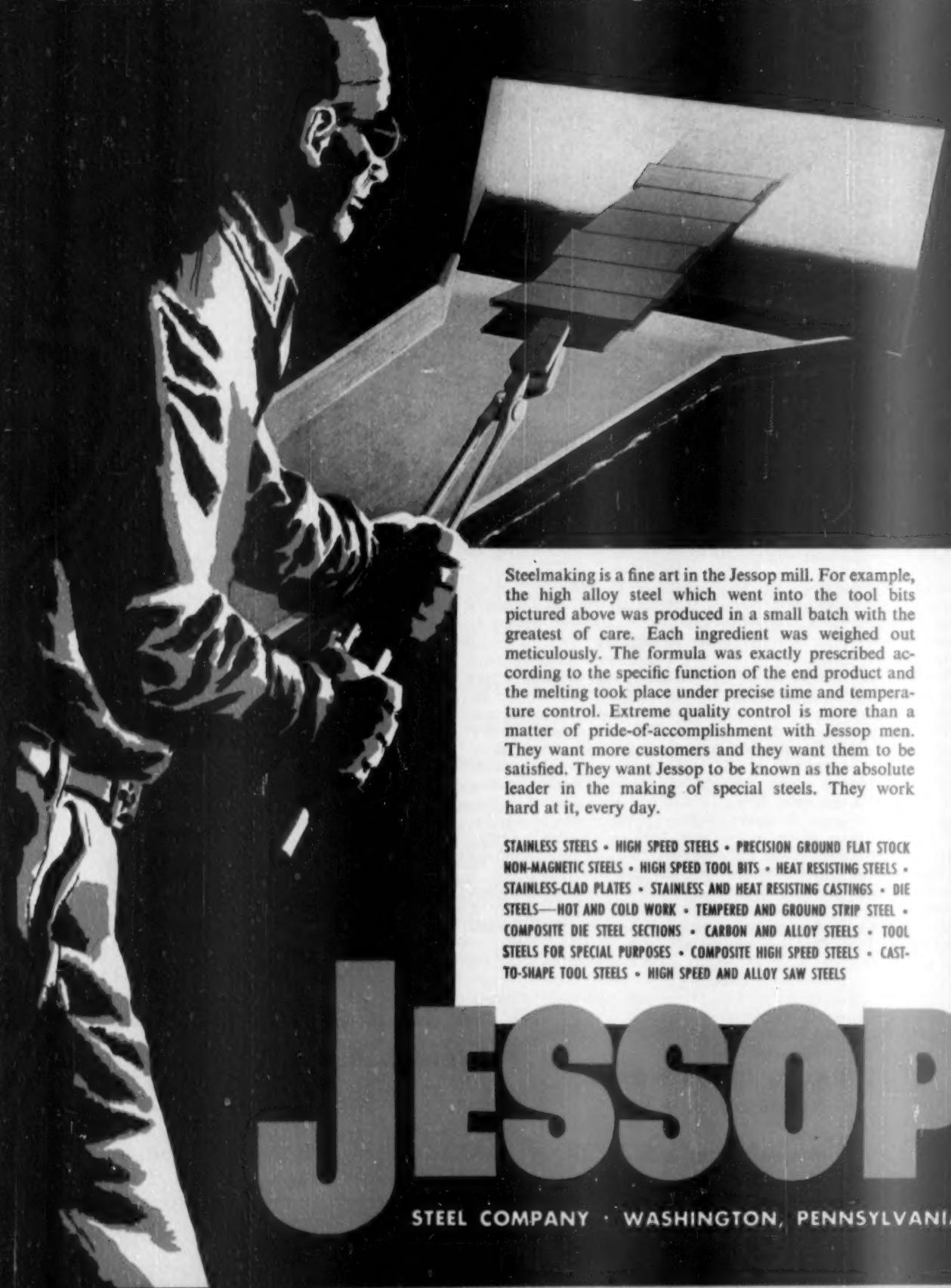
Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....

quality steel is more than pride at JESSOP



Steelmaking is a fine art in the Jessop mill. For example, the high alloy steel which went into the tool bits pictured above was produced in a small batch with the greatest of care. Each ingredient was weighed out meticulously. The formula was exactly prescribed according to the specific function of the end product and the melting took place under precise time and temperature control. Extreme quality control is more than a matter of pride-of-accomplishment with Jessop men. They want more customers and they want them to be satisfied. They want Jessop to be known as the absolute leader in the making of special steels. They work hard at it, every day.

STAINLESS STEELS • HIGH SPEED STEELS • PRECISION GROUND FLAT STOCK
NON-MAGNETIC STEELS • HIGH SPEED TOOL BITS • HEAT RESISTING STEELS •
STAINLESS-CLAD PLATES • STAINLESS AND HEAT RESISTING CASTINGS • DIE
STEELS—HOT AND COLD WORK • TEMPERED AND GROUND STRIP STEEL •
COMPOSITE DIE STEEL SECTIONS • CARBON AND ALLOY STEELS • TOOL
STEELS FOR SPECIAL PURPOSES • COMPOSITE HIGH SPEED STEELS • CAST-
TO-SHAPE TOOL STEELS • HIGH SPEED AND ALLOY SAW STEELS

JESSOP

STEEL COMPANY • WASHINGTON, PENNSYLVANIA

the other approach—pushing legs down to the ocean floor—promise to permit operations in deeper water. Among the designs in the works:

Bethlehem Steel Corp. is building a mobile platform for the C. G. Glasscock Drilling Co. of Corpus Christi, Tex., which is expected to use it in wildcatting for Shell Oil Co. This platform, really a barge or raft that can be towed to location, is designed to work in 13 to 100 ft. of water. The props are forced down to the subsoil of the bottom by hydraulic jacks.

There are two hulls. One goes down to the bottom and is clamped to the piles after they have been driven to a firm base.

R. G. LeTourneau Co. of Longview, Tex. (BW—Feb. 13'54, p103), has designed a barge with legs that would be lowered by rack and pinion drive (left drawing, pages 68, 69). When the legs have been driven far enough to carry the load, the barge is lifted out of the water to the desired height. It's designed for water up to 100 ft. deep.

Friede & Goldman of New Orleans have designed a similar unit for 100-ft. waters.

Offshore Drilling Co., Inc., plans one, too, for operations up to 60 ft.

Petroleum Instrument Co. of Houston proposes a more spectacular rig, designed by its president, Alonzo L. Smith, and already nicknamed the Sea Bat. Its novelty is a lower pontoon section fitted with large flaps or wings to provide stability during towing and during raising or lowering (right drawing, pages 68, 69).

Sun Oil Co. this week distributed plans among barge and platform contractors for a big raft with the engineering characteristics of a seadrome. During World War II, seadromes or floating islands were ballyhooed as a way of providing airports in midocean. Sun's floating island would be smaller, with room enough for one derrick and its auxiliary facilities, but cost is estimated at more than \$2-million.

Logistics—Apart from the problem of drilling rigs, the oil industry has other headaches in offshore operations. Every step from exploration to delivery of oil to pipelines is complicated by the fact that companies are working on water instead of on land.

Geophysical crews hunt for oil formations as they do on land, with seismographs, gravity meters, magnetometers, and other instruments. But they have a much harder time pinpointing the choice locations. They must use radar and radio navigating devices such as loran and shoran.

To support the drilling operations, companies must use whole fleets of boats. Humble, for example, has a navy of 36 boats to serve 12 drilling platforms as much as 10 mi. off the

Louisiana coast. The company figures it costs \$7,000 a day just to operate this fleet. Some of the larger craft cost \$175,000 or \$200,000 apiece.

The fleets of boats, in turn, need shore bases that cost anywhere from \$150,000 to \$400,000. Some companies also operate helicopters to serve the drill stations. An eight-passenger S-55 costs \$150,000 and takes about \$500 a day to operate, one oil company figures.

• **Keeping Crews Happy**—The day may come when helicopters are big enough and economical enough to ferry drill crews back and forth to work. Boats are too slow, though, and offshore crews must be provided with comfortable living at the drill sites. To keep the men happy in isolation, companies have to allow for air-conditioned quarters, recreation rooms with radio and TV sets—and a high scale of wages.

Crews usually work 12 hours a day, one week on and one week off or two weeks on and one week off. A typical driller pulls down \$710 a month; a doorman, \$485.

• **Water, Water Everywhere**—One of the biggest supply problems is fresh water, not so much for drinking as for mixing in the drilling mud. Salt water won't work in most drilling muds, so fresh water has to be barged out to the drilling rigs. So does the dry mud.

• **Seagoing Service**—Companies that serve oil wells—fishing for drill tools or electrically logging the subterranean formations as the drill and casing go down—have had to learn to work offshore.

Schlumberger Oil Well Surveying Co., a leader in the electrical logging business, first adapted to offshore work by loading its service trucks on barges and towing them to drill sites. Later, it mounted the equipment on 65-ft. motorboats and, more recently, on barges that also contain quarters for the crews.

• **Getting the Oil Ashore**—After a well has started to produce, the drill crew installs the well head fittings and moves on. But the company still has to bring the oil to shore, maybe 30 mi. away.

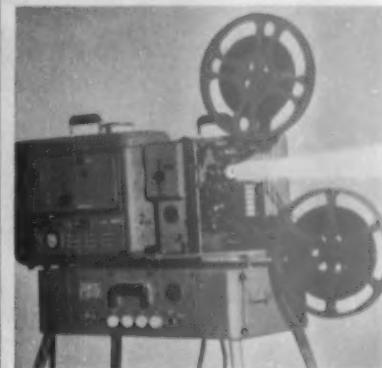
If the distance is short, a pipeline may be laid on the sea floor. If it's long, the company has to use relays of barges, which must run for shelter in bad weather and thus stop production at the wells. The latest proposal is to install underwater storage tanks connected with a group of wells, with enough capacity to let the wells keep producing even when barge navigation is shut down a few days.

On top of every other problem, oil companies have to abide by all the laws that govern oil production on land—plus the special rules of the Army Engineers and the Coast Guard that govern any operation on water.

RCA PORTO-ARC

more light for bigger audiences

MORE IMPACT!



However well prepared your sales or industrial film presentation, it will fall flat with your prospects if the picture looks "washed out" for lack of adequate light on the picture screen.

Folks remember sales films that "pack a punch." Give your films added impact and your audience a picture that carries realism and conviction.

You can do this with the RCA Porto-Arc, the 16mm arc projector that offers truly professional results in easy-to-use equipment. The arc lamp provides plenty of light for large auditorium work. RCA "Thread-Easy" mechanism makes it easy for anyone to put on a professional showing. Sound reproduction is superb.

For Information, contact your RCA Audio-Visual Distributor, or MAIL COUPON TODAY.



RADIO CORPORATION OF AMERICA

RCA Audio-Visual Products
Dept. D26, Building 15-1
Camden, New Jersey

Please send me information on the new RCA Porto-Arc 16mm projector and the name of my local RCA Audio-Visual Distributor.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



New engine power gets loads there with time to spare—and cuts operating costs, too!

With great new high-compression power in every model, new Chevrolet trucks for '54 bring you two mighty important advantages.

First off, you save valuable time on the job. Whether your hauls are long or short, these fleet new Advance-Design trucks let you maintain faster schedules *without driving at higher maximum road speeds*. That's because they bring you greatly increased acceleration and hill-climbing ability. You not only save time where it counts, but you save it with greater safety!

In addition, you'll save plenty on operating costs. New Chevrolet trucks bring you great new gasoline economy for 1954. All three advanced engines—the "Thriftmaster 235," the "Loadmaster 235" and the all-new "Jobmaster 261"—give you the full benefit of thrifty

high-compression power. They're designed to make gasoline work harder and go farther on your job.

But that's only part of the money-saving power story behind these great new trucks! You enjoy lower upkeep costs and longer engine life, thanks to proved Chevrolet valve-in-head design. And something new has been added—new and even greater stamina with such features as aluminum pistons and full-pressure lubrication, plus extra strength in cylinder block, crankshaft and other vital engine components.

Drop by your Chevrolet dealer's soon and discover all the other cost-cutting, time-trimming features offered by the most powerful, finest performing, best-looking Advance-Design trucks ever built! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET ADVANCE-DESIGN TRUCKS

It's better business to buy Chevrolet trucks



NEW CHASSIS RUGGEDNESS: You get extra strength and stamina! Heavier axle shafts in two-ton models . . . bigger, more durable clutches in light- and heavy-duty models . . . stronger, more rigid frames in all models.

Completely new '54 Chevrolet trucks offer all these brand-new features—

NEW, BIGGER LOAD SPACE: New pickup bodies have deeper sides. New stake bodies are wider, longer and roomier. You can haul bigger, bulkier loads.

NEW AUTOMATIC TRANSMISSION:* Great new driving ease! Truck Hydra-Matic is offered not only on $\frac{1}{2}$ - and $\frac{3}{4}$ -ton models, but on 1-ton models, too!

NEW COMFORTMASTER CAB:

Offers new comfort and safety. New one-piece curved windshield gives extra visibility.

NEW RIDE CONTROL SEAT:* Seat cushion and back move as a unit to "float" you over bumps. Eliminates annoying back-rubbing.

NEW ADVANCE-DESIGN STYLING: New, massive front-end design. New parking lights show the full width of the truck.

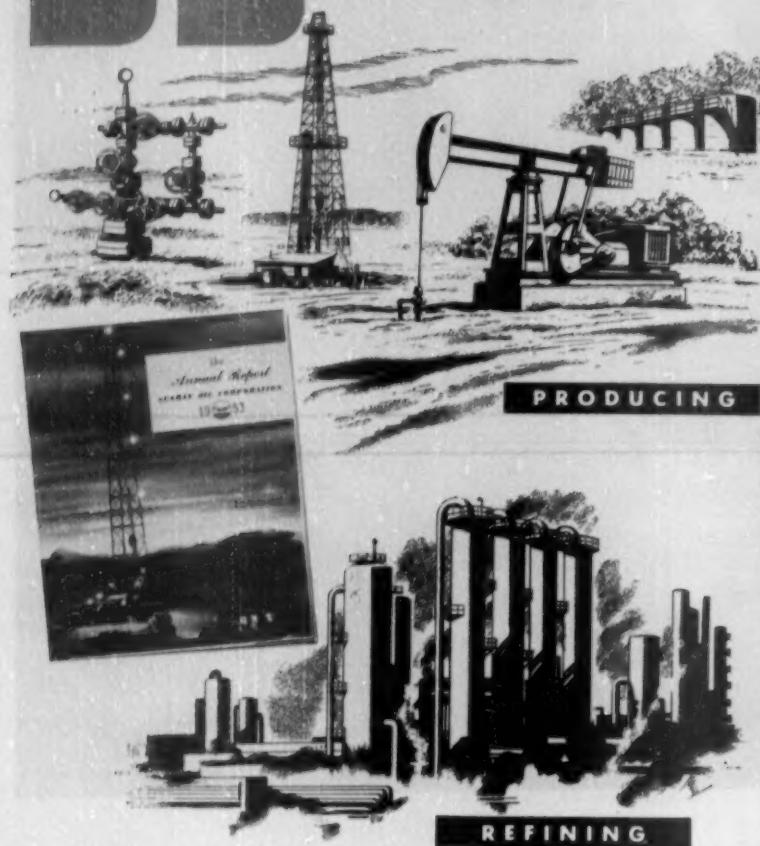
*Optional at extra cost. Ride Control Seat is available on all cab models, "Jobmaster 261" engine on 2-ton models.

MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!



33RD ANNUAL REPORT

TO SUNRAY OIL OWNERS . . .



HIGHLIGHTS from SUNRAY'S REPORT

	1953	1952	1951
GROSS INCOME.....	\$127,476,981	\$128,754,665	\$126,354,825
NET INCOME.....			
Total.....	\$27,572,897	\$24,734,411	\$24,282,516
Per Share of Common Stock.....	\$2.54	\$2.30	\$2.23
DIVIDENDS.....			
Common Shares.....	\$12,245,969	\$11,976,952	\$11,664,379
Per Share.....	\$1.20	\$1.20	\$1.20
CAPITAL EXPENDITURES, Net.....	\$33,495,404	\$38,803,765	\$36,047,891
OPERATING.....			
Net Production (Barrels).....	25,502,404	25,664,137	26,619,469
Refinery Runs (Barrels).....	14,388,466	14,506,969	13,555,528

If you want to know more about us, write for your copy of SUNRAY's 33rd Annual Report of Progress in 1953. Write SUNRAY OIL CORPORATION, P. O. Box 2039, Dept. PR-2, Tulsa, Oklahoma.



SUNRAY OIL CORPORATION

GENERAL OFFICES . . . TULSA, OKLAHOMA

"America's Interests and SUNRAY's Interests Go Hand in Hand."

Color Checker

Electronic version of the spectrophotometer cuts human error, speeds job of spotting exact shades.

Companies that use a great variety of color have a tough time keeping them sorted out. Some plants rely on the human eye to tell the difference between, say, midnight blue and navy blue. Others use a spectrophotometer, which breaks down a color into its primary components, so that a skilled matcher can measure the color.

Now there's a new development in the field—an electronic version of the spectrophotometer that automatically matches the color, and is said to do the job faster and more accurately.

The new color device was developed by American Optical Co.'s instrument division, Buffalo, N. Y., and the Allen B. Du Mont Laboratories, Inc., Clifton, N. J. It bears the imposing name of Rapid Scanning Spectrophotometer, but its developers say it's easier to use than to spell.

Three of these spectrophotometers are already in operation. Landers Corp., a Toledo vinyl fabric producer, uses one to keep track of some 800 color samples. Biochemists at Ohio State University use it to measure rapid changes in chemical or biological materials. A cosmetics company in New York has put it to work matching up shades of lipstick with identical shades of nail polish.

• **Better System**—Actually, the electronic spectrophotometer is three gadgets rolled into one. It is a spectroscope, which breaks a color into its components; a photometer, which measures the intensity of each component; and an oscilloscope—the lab man's version of a TV tube. And it takes the measurements from the spectroscope and the photometer, shows them as lines on a graph on its electronic picture tube.

With the nonelectronic spectrophotometer, a worker has the job of interpreting the measurements of the instrument, taking several readings, then plotting the graph lines a color expert calls a color absorption curve. That takes a lot more time and there's always the chance of error due to fatigue or improper lighting. Moreover, no two people see color exactly the same way.

• **Operation**—The new setup works like this: Suppose you want to determine the color characteristics of a piece of brown fabric. First, you use a device called a reflectometer to transmit its color into the spectrophotometer. The

BUSINESS IN MOTION

To our Colleagues in American Business . . .

Recently a manufacturer who planned to make a new electric coffee percolator came to Revere with a variety of problems. The first concerned the selection of a metal which would assure a quality product, yet be capable of economical fabrication in his plant. A Revere Technical Advisor consulted with the company's design engineers, and recommended copper in a temper suitable for deep drawing. The suggestion was based on the fact that this metal is ideally suited because of its excellent forming characteristics, the fine finish obtainable, and the ease with which it can be plated.

In order to give further assistance in the development of the new product, a thorough study was made of the customer's production equipment. It was pointed out that there were several possible methods of making the percolator body. Mutual analyses pointed out the best of these. This activity was especially appreciated, because the manufacturer had previously done little with copper, having worked chiefly with aluminum. Both metals, of course, can be put through the same equipment, but since they have different characteristics, switching from one to the other requires special consideration of such matters as tooling, annealing, and finishing.

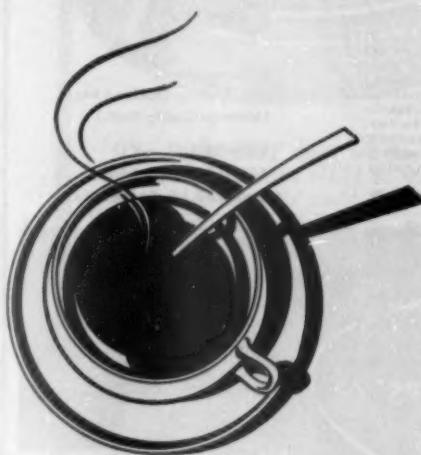
During the period of trial runs and initial production Revere continued to work closely with the customer. Today the percolator is used daily in the homes of a growing number of satisfied owners. The

fact that the manufacture of this new product started so smoothly and quickly was due in large part to the desire of the customer to collaborate completely with the Technical Advisory Service, and take full advantage of our experience and knowledge.

First Revere contact was with the Purchasing Department. That is standard procedure. Subsequently it was made possible for us to work with the design and tool engineers, methods engineers and production supervisors, in fact with practically everybody who had a position of responsibility in regard to the new product.

Some Revere customers ask only for Revere Metals; others, as in this case, seek our engineering and production know-how, obtained over many years in the field. Our special technical services, please understand, are not billed; they are a part of our contribution to the welfare of American industry, with which our own welfare is so inter-woven. Naturally, such services are provided on a confidential basis, and trade and production secrets are respected.

Suppliers to every industry are just as eager as is Revere to win fast friends and loyal customers. Therefore it is suggested that no matter what materials you buy, nor what you produce from them, you take your suppliers into your full confidence. Adding their knowledge and skill to yours should pay you well, at no extra cost.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N. Y.

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS



Since locating a branch plant in the Metropolitan Oakland Area in 1919, Sherwin-Williams has increased paint output by 800%. It's further proof that MOA's concentrated markets, high consumer buying power, skilled labor supply, etc., create a healthy climate for industrial expansion.

SHERWIN-WILLIAMS FINDS THAT INDUSTRY "GROWS PLACES" IN MOA*



If your company is seeking the ideal location for a western branch plant, let us send you the new, Free FACT-FILE. It contains complete information on MOA's outstanding profit-making factors...you'll find there's greater opportunity to "grow places" in MOA. Your request will be held strictly confidential.



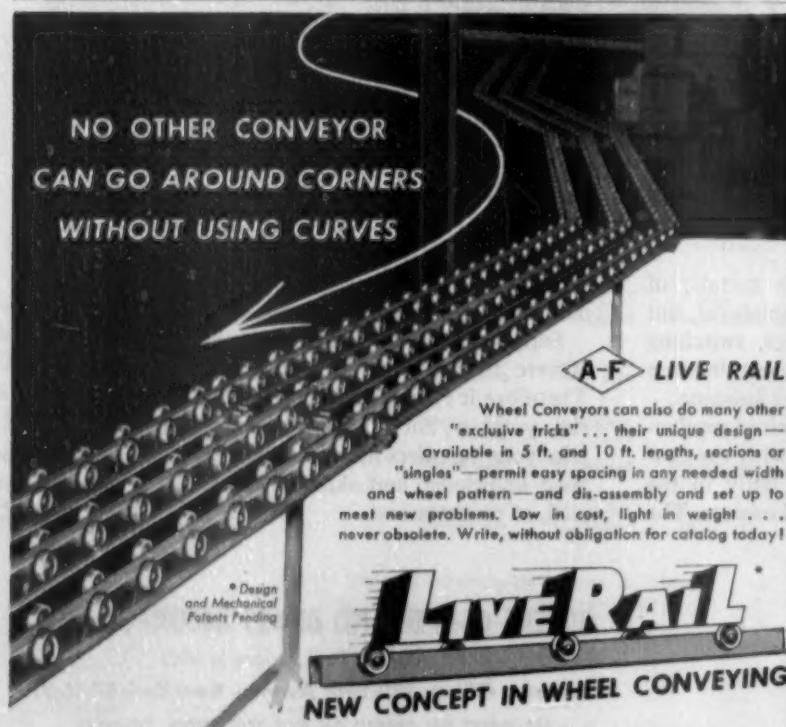
**M
O
A
Area
CALIFORNIA**

ALAMEDA
ALBANY
BERKELEY
EMERYVILLE
HAYWARD
LIVERMORE
OAKLAND
PIEDMONT
PLEASANTON
SAN LEANDRO
RURAL ALAMEDA COUNTY

*MOA means
Metropolitan Oakland Area
(Alameda County, Calif.)

**Suite 106
427 Thirteenth Street
Oakland 12, California**

**NO OTHER CONVEYOR
CAN GO AROUND CORNERS
WITHOUT USING CURVES**



A-F LIVE RAIL

Wheel Conveyors can also do many other "exclusive tricks"...their unique design—available in 5 ft. and 10 ft. lengths, sections or "singles"—permit easy spacing in any needed width and wheel pattern—and dis-assemble and set up to meet new problems. Low in cost, light in weight...never obsolete. Write, without obligation for catalog today!

*Design
and Mechanical
Patents Pending

LIVE RAIL
NEW CONCEPT IN WHEEL CONVEYING

Pre-Engineered Division **ALVEY-FERGUSON... OF CINCINNATI**
First in Conveyor Pioneering—Since 1901

5 Disney St. CINCINNATI 9, OHIO. Offices or Representatives in Principal Cities

spectroscope picks up the color, breaks it into a brownish rainbow. This rainbow shows how the pigments in the color are distributed. The photometer looks at the rainbow, measures the intensity of each of its colors. Then the oscilloscope takes these measurements, projects the color absorption curve onto the face of the picture tube.

If you want to keep a record of the characteristics of that particular shade of brown, you can record the color absorption curve with a special Polaroid camera. You file this away with a sample of the color.

If you want to compare several samples of a color to see if they differ, you feed them into the spectrophotometer one at a time, then make multiple exposures with the camera. Differences will show up in the picture, because each shade produces its own characteristic curve.

• Simpler—An added advantage of the electronic version is that you don't have to be an expert color matcher to operate it. Charles J. Chaban, research director at Landers, says that a good laboratory technician would be able to do the job.

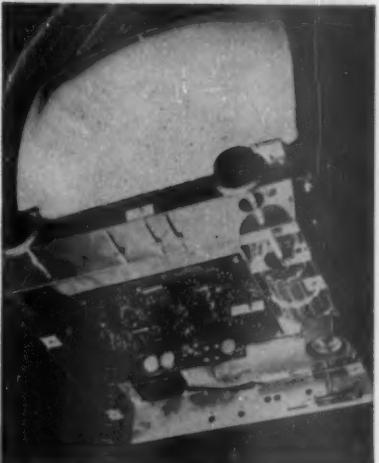
Chaban also says the setup has simplified the storage problem in his color lab. Up to now, he had to store away several samples of each color, to show how it appeared under different conditions. Now he stores a single photo of each color curve, with a sample of the material it's to be used with.



Breathe Deeply, Please

Using a technician's version of a doctor's stethoscope, this engineer at General Electric Co.'s turbine plant at Schenectady, N. Y., can detect any rubbing or abnormal sound inside the 3,600-rpm. rotor of a 125,000-kw. generator. The stethoscope is a solid steel rod.

PRODUCTION BRIEFS



Nothing is missing. This TV chassis has all the essential circuit elements, but they're not easy to see. The usual tangle of wires has been replaced with thin copper-clad plastic sheets onto which the various circuits have been printed or etched. The developer—Sanders Associates, Inc., Nashua, N. H.—says printed circuits can shave TV costs by \$50 a set.

Electronic remote controls, designed and developed by Bell Aircraft Corp., Buffalo, N. Y., make it possible to land a guided missile undamaged after a flight test.

Liquid natural gas will move by barge up the Mississippi and Illinois Rivers within the next few months, according to the Oil and Gas Journal. The barges will operate between Louisiana gas fields and Chicago, where the gas will be vaporized and used for power.

Power from nuclear energy can't come on a big scale until many metallurgical problems are solved, says Westinghouse Electric Corp. To work out those solutions, the company will build a multimillion-dollar metals plant at Blairsville, Pa. The plant will provide equipment for basic metalworking processes such as melting, and hot-rolling.

A portable X-ray machine is supplementing visual inspection of aircraft parts in the inspection department of Delta-C&S Air Lines, Atlanta, Ga. The company says the new equipment eliminates some of the disassembling that is now necessary for routine checks.

Sylvania Electric Products, Inc., has begun manufacturing operations at its largest TV assembly plant—at Batavia, N. Y. One assembly line is in operation now; three more will start by the end of June.

THE PEN THAT
FILLS ITSELF



MODEL 444

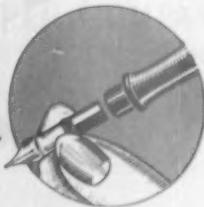
The PERFECT desk set for busy desks. Pen always ready to write—automatically fills itself from giant ink fountain every time pen is returned to socket. Fountain-base needs ink only 4 times a year in normal use.

- ① Finger grip never touches ink. No chance for ink to touch you.
- ② Fountain-base "ink-locked" against accidental spillage. Only the pen unlocks the ink.
- ③ Fountain-base holds 40 times more ink than ordinary fountain pen. Won't leak. Won't flood. Easy to clean as a saucer.

Ask your stationer for a demonstration.

TO SELECT OR REPLACE . . . HERE'S ALL YOU DO.

More than 28 interchangeable point styles
for personal use or for public counters.



Esterbrook
DESK PEN SETS

THE ESTERBROOK PEN COMPANY, CAMDEN 1, NEW JERSEY
The Esterbrook Pen Company of Canada, Ltd., 92 Fleet St., East; Toronto, Ontario

COPYRIGHT 1954, THE ESTERBROOK PEN COMPANY

Gives instant answers—no presetting of dials, bars, levers to slow you down. Floating Touch speeds figure work by making it easier. Three-Way Error Control gives automatic accuracy. Call the Comptometer representative.

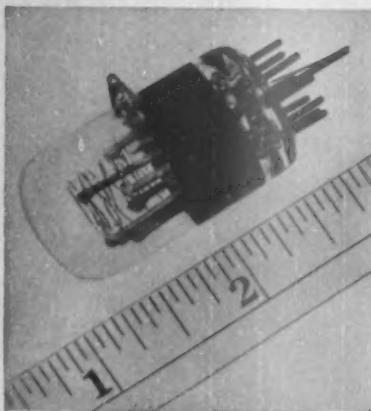
Electric and non-electric models



COMPTOMETER ADDING-CALCULATING MACHINES are made only by Feit & Tarrant Manufacturing Co., and sold exclusively by its Comptometer Division, 1788 North Paulina Street, Chicago 22, Illinois. Offices in principal U. S. cities and throughout the world.

COMPTOMETER

NEW PRODUCTS



Versatile Tube . . .



. . . That Tells Time

The tube in the top picture lights up to form the small numbers in the bottom picture. The developer, National Union Radio Corp., expects it to take the place of the mechanical dials on tabulating devices and clocks, because each tube is capable of showing any digit or letter.

• Source: National Union Radio Co., Jacksonville Road, Hatboro, Pa.

Bottles You Can Drop

If you let an ordinary bottle drop from about a 1-ft. height, it has a 50-50 chance of breaking. But if you coat it with a new silicone emulsion—developed by General Electric Co.'s Silicone Products Dept.—GE says you reduce the chances to 7 in 100.

GE has been testing its new emulsion with glass products made by the Brockway Glass Co., Inc., Brockway, Pa. Brockway makes catchup bottles, baby food jars, fruit juice bottles, soft drink containers. Without silicone treatment, the company estimates that about two bottles in every 1,000 are

broken in the filling process. With silicones, breakage is reduced to just a little more than one bottle in every 10,000.

• Source: General Electric Co., Silicone Products Dept., Waterford, N. Y.



Pin-Gun for Steel

The formidable-looking device above is designed to drive heavy shank fasteners into structural steel plates. The manufacturer, Ramset, a division of Olin Industries, Inc., claims that it is the first such tool ever made that will punch a steel pin through an inch-thick plate of steel. According to the manufacturer, a pin that is driven into steel or concrete with the tool has a holding power that is 25% greater than it would have with an earlier model. Also, it is 3 lb. lighter, weighs under 8 lb.

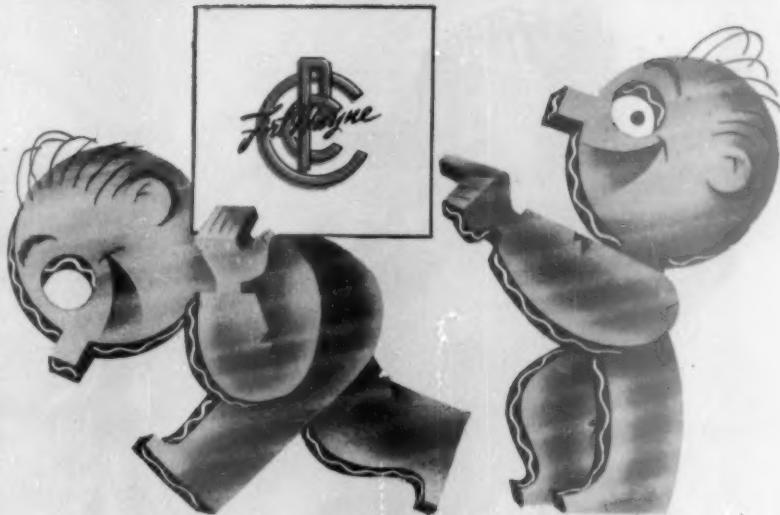
• Source: Ramset, a division of Olin Industries, Inc., 12117 Berea Road, Cleveland, Ohio.

NEW PRODUCTS BRIEFS

An electronic ear, developed by Raytheon Mfg. Co., Waltham, Mass., can do something no human ear could ever do. It can distinguish any one of 84,000 different noises in what may seem to the human ear to be a single sound. The company says it can analyze such things as engine vibration, tell whether the cause is loose bearings, unbalanced crankshaft, or what.

To dry out equipment that has been exposed to moisture, the Spradri Co., 332 Atando Ave., Charlotte, N. C., has introduced a chemical that displaces moisture, coats the surface with a water-repelling film.

An atomic battery that fires a standard photo-flash bulb has been developed by Tracerlab, Inc., 130 High St., Boston, Mass.



When you deliver the goods...

DELIVER SAFE AND SOUND IN CONTAINERS BY FORT WAYNE!

Know the economy of corrugated shipping containers that reduce damage claims, cut excessive shipping costs. Get custom-designed, precision-built containers that assemble quick and easy, pack fast, stack strong. Take advantage of Fort Wayne's complete laboratory control of raw materials and every manufacturing step—control that produces containers true to your requirements as to weight, shape, appearance, protective features and quality of materials. And whether you use a thousand or a million, rest easy that they'll be uniform in every detail. When you deliver the goods, deliver the Fort Wayne way—safe and sound! Your nearby Fort Wayne representative will co-operate. Give him a call today.

CORRUGATED FIBRE BOXES

CORRUGATED PAPER PRODUCTS

Fort Wayne
CORRUGATED PAPER COMPANY
GENERAL OFFICES • FORT WAYNE 1, INDIANA

Sales Offices:

Chicago, Ill.
Peoria, Ill.
Hartford City, Ind.
Indianapolis, Ind.
Muncie, Ind.
Vincennes, Ind.
Washington, Ind.
Jackson, Mich.
Jersey City, N.J.
Buffalo, N.Y.
Jamestown, N.Y.
New York, N.Y.
Rochester, N.Y.
Syracuse, N.Y.
Utica, N.Y.
Akron, Ohio
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Dayton, Ohio
Lima, Ohio
Harrisburg, Penna.
Pittsburgh, Penna.
Winchester, Va.
Milwaukee, Wis.

Plants:

Rochester, New York
Chicago, Illinois
Pittsburgh, Pennsylvania
Hartford City, Indiana



Affiliate:

Southern Paperboard
Corporation
Port Wentworth, Georgia



"Stratosphere Academy" ... (TETERBORO, N.J.)

Where Bendix Aviation simulates the world 16 miles up
to maintain U.S. supremacy in jet engine equipment!

Height and speed are two chief requisites for military aviation supremacy. Jets have replaced reciprocating engines because they'll fly a man higher and faster.

Height and speed, however, are correlated to cold and heat in fantastic proportions when you fly a jet!

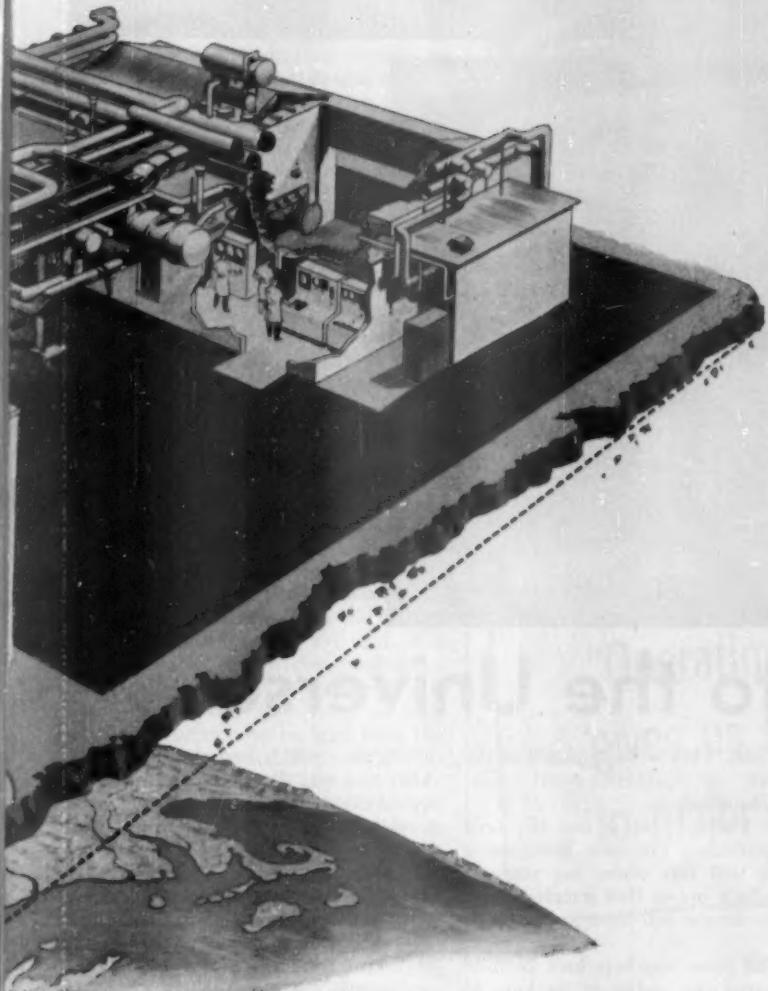
That's why building the jet engine and vital components for it like generators, fuel pumps and controls, and air-borne starters necessitates completely revolutionary engineering approaches to the problems that come up.

Gone is the old crankshaft as a driving source. You use air. Not the delightful spring breeze that lazily turns the windmill but a violent, hot blast powerful enough to turn a turbine wheel up to 100,000 r.p.m.s!

Nor can you use old metallurgical formulas. If a turbine

wheel disintegrates at 100,000 r.p.m.s., you get shrapnel! These and many other problems are being studied and solved by Bendix today. Instead of learning by trial and error, Bendix has taken the lead by building the finest Air Turbine Facility in the world designed for the express purpose of testing all the turbine driven equipment we make for jet aircraft.

Inside this multimillion dollar proving ground we test Bendix turbine generators the size of a breadbox that are powerful enough to light 15 homes . . . a fuel pump that can withstand the shock of being driven by an 800° F. blast of air while delivering 50° below-zero fuel . . . to



PRINCIPAL DIVISIONS AND BASIC PRODUCTS

ECLIPSE-PIONEER, TETERBORO, N. J.
aviation instruments and components; foundry.

ECLIPSE MACHINE, ELMIRA, N. Y.
Stromberg* carburetors, electric fuel pumps, starter drives, coaster brakes.

BENDIX PRODUCTS, SOUTH BEND, IND.
automotive brakes, carburetors, power steering; aviation brakes, landing gear, fuel metering.

SCINTILLA, SIDNEY, N. Y.
aviation ignition systems; industrial engine magnetos; diesel fuel injection.

BENDIX RADIO, TOWSON, MD.
radar; auto, railroad, mobile and aviation radio; television.

MARSHALL-ECLIPSE, TROY, N. Y.
brake blocks, brake lining, synthetic resins.

BENDIX FRIEZ, TOWSON, MD.
meteorological instruments; precision instruments and recorders.

RED BANK, EATONTOWN, N. J.
electronic tubes; dynamotors, inverters.

ZENITH* CARBURETOR, DETROIT, MICH.
automotive, marine and small engine carburetors.

BENDIX-SKINNER, DETROIT, MICH.
micronic filters.

PACIFIC, NORTH HOLLYWOOD, CALIF.
telemetering equipment; hydraulic and electric actuators; depth recorders; boat steers.

CINCINNATI, CINCINNATI, OHIO
automatic viscosity regulators, nuclear products.

BENDIX COMPUTER, LOS ANGELES, CALIF.
digital computers.

BENDIX-ECLIPSE OF CANADA, LTD.
Windsor, Ont.

BENDIX INTERNATIONAL
New York City

*REG. U.S. PAT. OFF.



make sure these and other vital Bendix jet engine components function perfectly under all flying conditions from sea level to 80,000 feet!

Located at Teterboro, New Jersey, it is an adjunct of our Eclipse-Pioneer Division. In addition, Bendix also operates a new environmental test building for guided missiles at Mishawaka, Indiana.

You and Bendix

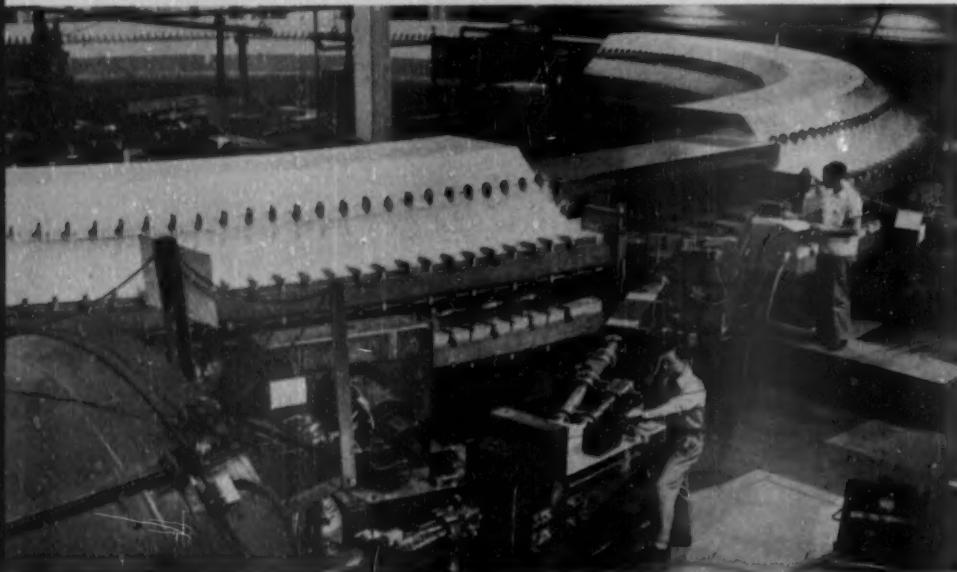
This is just a little bit of Bendix in the aviation field. You should get the full story of Bendix Aviation Corporation and how it can contribute to your business. Our product line and technical abilities are so diverse that we're certain you'll find specific uses for improving most any type operation. We're developing new products and new techniques constantly. We invite you to follow through on the following suggestion:

FIND OUT HOW BENDIX CAN HELP YOUR BUSINESS

The complete story of Bendix is best told and illustrated in an interesting new digest called "Bendix and Your Business." You are almost certain to find in its pages at least one idea of how Bendix can help improve some part of your own business. Please make requests for this 40-page booklet on your company letterhead to:

BENDIX AVIATION CORPORATION • FISHER BLDG., DETROIT 2, MICHIGAN

RESEARCH



THE COSMOTRON at Brookhaven National Laboratory has been the world's most powerful atom smasher since it started operating about two years ago.

Atomic Key to the Universe

By the time the world had seen the atomic age dawning at Hiroshima, the nuclear field had already become a fad for research physicists. Since 1945, the fad has developed into a race for bigger and more powerful atom smashers, the nuclear scientist's big research machine.

As the pace has grown hotter, more and more people have begun to ask what the big machines are, whether they're worth all the fuss—and especially all the money. Atom smashers are expensive: A proposed new one at the government's Brookhaven National Laboratory on Long Island will set the Atomic Energy Commission back about

\$20-million. One just completed at the University of California cost AEC about \$9-million.

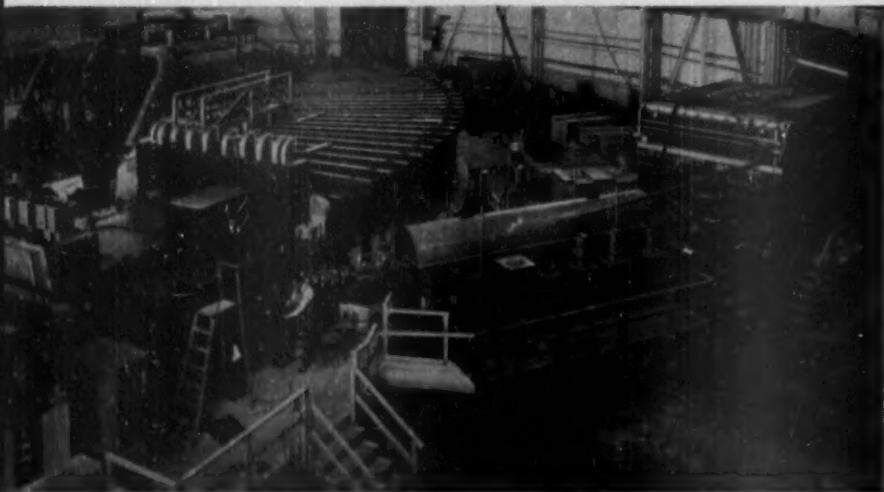
• **Time Factor—**Cost is not the only major problem. The new Brookhaven machine will take about six years to build, which means that scientists with ideas for its use will have to cool their heels.

Not all atom smashers have been so complicated, so costly, or so long to build.

In the 1930s scientists began to worry seriously about the tearing apart of atoms—the smallest identifiable bits that give matter its identity as oxygen,

hydrogen, gold, lead, or whatever. They had a pretty good idea that atoms were made of building blocks that were similar in all matter. They felt that they would go a long way toward understanding matter if they could tear apart the atom under controlled conditions and find what holds it together. A few even dreamed the ancient dream of transmuting lead into gold.

• **Theory—**The researchers believed then, as they still do, that finding what the atom is made of and how it gets that way would unlock the secrets of the universe. They hoped to find the secrets of the sun and its warmth, and



THE GIANT BEVATRON at the University of California has just begun operation, and will hold the champion's throne for the next few years.



THE RACE to smash atoms started with the relatively small Van de Graaff.

what holds the earth together. In their investigations, they learned enough to create the atomic and hydrogen bombs.

But the scientists working on today's atom smashers are not interested in bombs. They aren't making raw materials for explosives or developing new theories for more powerful bombs.

The machines that the public knows as atom smashers are called particle accelerators by the scientists. They come by this name honestly, for their sole purpose is to take the minute parts of atoms, whip them around at fantastic speeds, and then discharge them much as a bullet is fired from a gun. How the acceleration is done and what particles are to be accelerated makes for the difference in types of machines.

• **Brute Force**—The early machines, called Van de Graaff generators, achieved their purpose by sheer brute force. Electrical charges, similar to those formed by feet shuffling across a thick carpet, are deposited on a motor-driven belt. The belt drives the charges by mechanical force to the end of a tank where they are deposited on a large dome to build up a charge progressively. When the charge is high enough, a particle to be fired from the machine is deposited in front of the dome. In its rush to get away from the dome, which is repellent to the added particle, the particle builds up the energy that fires it from the atom smasher.

The main advantage to this machine—a principal reason why it is still in wide use despite the existence of bigger and newer machines—is the exacting limits in which its energy can be controlled.

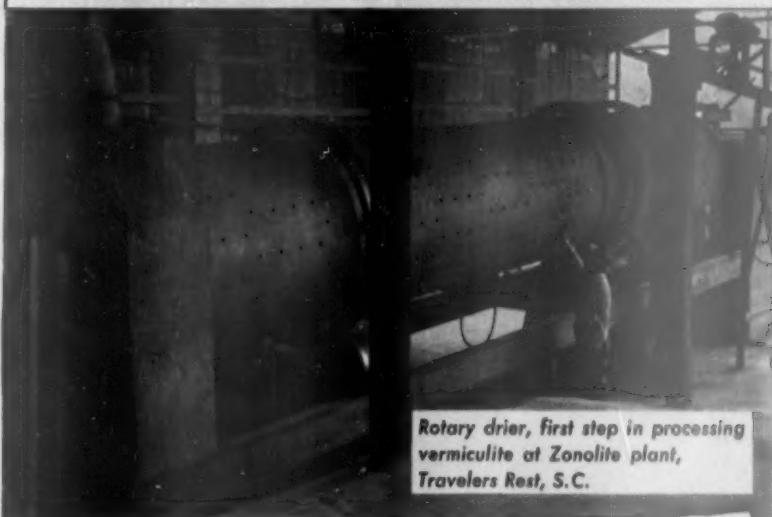
In all atom smashers, scientists can study the beam of the fired particles, or can place another material in the way of the beams and see what happens.

These two techniques are the basic system of research used on all atom smashers. The bigger and more powerful machines give effects from the beam that aren't otherwise possible.

The Van de Graaff, for instance, will accelerate positively charged particles until they have an energy of 4-million electron volts, a measure used to express the force with which the particles are fired from the atom smashing gun. The new Brookhaven machine, using a different system of firing, is expected to develop particles with an energy of 25-billion electron volts, about 6,000 times the force created by the Van de Graaff.

• **Cyclotron**—The most widely used system of accelerating the particles developed since the Van de Graaff is that used by the cyclotron, which was the leading type of atom smasher during and just after the war. In the cyclotron, electrical and magnetic fields

INDUSTRY SUCCEEDS IN SOUTH CAROLINA



Rotary drier, first step in processing vermiculite at Zonolite plant, Travelers Rest, S.C.

"Operating in South Carolina gives us fast and easy access to major markets"



says A.T. Kearney, President
Zonolite Company, Chicago, Illinois

"We have found our operations in South Carolina to be particularly advantageous because its strategic location helps us reach major markets in the northeastern part of the country, as well as the booming South. Rapid, inexpensive transportation is available in both directions.

"Our South Carolina produced vermiculite products have been used in such outstanding national buildings as the new Lever House in New York City and as far south as the Saxony Hotel, Miami Beach, Fla."

LOCATE YOUR PLANT WITH THESE 8 ADVANTAGES

Happier, more productive employees
Cooperative State and Local Government
Nearness to markets
Mild climate

Wealth of natural resources
Abundance of water and power
Splendid transportation (land, sea, air)
Low construction costs

Your inquiry will be handled in confidence.
Write, wire or telephone (LD 94) now.

L. W. Bishop, Director
Research, Planning & Development Board
Dept. SW-4 Columbia, South Carolina

BUSINESS FAILURES IN UNITED STATES, 1952	
Dun & Bradstreet Magazine	
United States	20.99 per 10,000
South Carolina	4.2 per 10,000

**South
Carolina**

WHERE RESOURCES
AND MARKETS
MEET



What can unique METAL FACED PLYWOOD do for your product?

Unusual advantages of Weldwood
Armorply® stir imagination
of designers and fabricators

ARMORPLY is Weldwood plywood with metal permanently bonded to one or both faces.

BENEFITS. It combines the strength, light weight, and easy fabrication of plywood with the toughness, impact resistance, fireproofness and long life of metal. Use of thin-gauge metal in Armorply means substantial material and fabrication savings.

NOW USED in truck bodies, pallets, walk-in and reach-in refrigerators, elevator cabs, counter tops; lead-faced Armorply used in X-ray rooms.

NEW FORMING GRADE Armorply shown can be rolled into single-curvature shapes, bent to right angles with standard tools, die-cut, punched or perforated. Any metal can be used.

SEND FOR SAMPLE. Special Products Division of United States Plywood Corporation will be glad to show you how Armorply cuts costs, speeds production.

Armorply®

A PRODUCT OF
UNITED STATES PLYWOOD CORPORATION

BW-4-10-54

United States Plywood Corporation
55 West 44th Street, New York 36, N.Y.
FREE: Please send me free sample of Armorply and literature. [] Please have a salesman call. []

NAME.....

ADDRESS.....

CITY..... STATE.....

"...with each new discovery researchers have got new surprises..."

ATOM SMASHERS starts on p. 86

are alternately made positive and negative to attract and then repel a particle to be shot from the machine. With each alternation of current the speed and energy of the particle increases until the particle has reached the desired energy.

When scientists started using these new nuclear tools, the job looked relatively easy. Many competent men felt that there would never be an economical method of creating energies even in the realm of 500-million electron volts, let alone one of 25-billion ev. And many felt that such powerful machines would have no practical value.

Since then, with each new discovery researchers have got new surprises. With each increase in energy, the physicists find new needs for still more powerful machines. That means building bigger machines with huge magnets and gigantic dimensions. The 25-billion ev. Brookhaven machine will have a magnet containing 2,500 tons of steel and 500 tons of copper. Its diameter will be about 700 ft., more than twice the length of a football field.

• **Brink**—Scientists have a little trouble in explaining why they need the bigger machines and what significance they will find in the answers they hope to get. It all boils down, however, to their belief that they're on the threshold of something really great. They could be the Galileos of our day.

They are seeking for a magic touchstone that will fit together all the disjointed pieces of information gathered since the 1930s.

At first, the researchers felt that all matter was made of just three types of building blocks. For convenience, they call the negatively charged blocks electrons, the positively charged blocks protons, and those with no charge neutrons. Protons and neutrons were believed to weigh about the same, and to be 1,840 times as heavy as electrons.

The electrons were believed to be spinning around a nucleus much as the earth revolved around the sun. Protons and neutrons were believed to compose the nucleus.

• **Support**—So far, the scientists haven't found anything to upset this belief. They have found evidence that the three main building blocks do exist and do have properties similar to those attributed to them by theory. But the new atom smashers have revealed that a lot of other building blocks or maybe just mortar seem to be in the atom.

Many other particles of different weights and varying charges have been found when beams from the machines crashed into targets.

Thus, instead of simplifying the problem, each new development has tended to add complication. The main aim of the increased research is to find some key that will bring order out of the chaos.

Many theories have been advanced, and experiments are progressing to prove or disprove them. Some believe that mesons, one of the newly found particles, may be the glue or mortar that holds protons and neutrons together in the center of the atom. Another idea is that instead of there being the three particles of different weight—one positive, one negative, and one neutral—that there are particles of many different weights with positive and negative variations of each type occurring.

• **Missing Particle**—This idea has proven right up to now except that no one has found a negative particle weighing enough to compare with protons and neutrons. If no such particle exists, this whole theory must be thrown away. If such a particle is found, then this idea may be one part of the mystic key to the whole nuclear puzzle. Scientists are taking sides and even friendly bets on whether the particle exists.

This is why the atomic scientists suddenly need a bigger machine than has ever been built before. Calculations on present theories indicate that the wanted particle can't be revealed by any machine operating at less than 5-billion to 6-billion ev. The higher the energy the better is the chance of finding the particle if it exists.

The Bevatron, a new machine at the University of California, is designed to get energies of 6.5-billion ev. This may be enough to locate the particle, but most scientists aren't too optimistic. They think the chances are much better with a proposed 25-billion ev. machine. In five or six years, they'll know where their theories stand.

• **Therapy**—While scientists are placing their hopes on the new machines, they haven't forgotten the smaller and less powerful atom smashers. The Van de Graaff generator will still do things that no other machine can accomplish. Its accuracy makes it excellent for much cancer therapy. Practically every cyclotron ever built is still in active use as a research tool.

Even though making isotopes with a cyclotron is a costly process, it is still the best method for some applications. Thus for special purposes, special requirements must be met. That's where atom smashers come in.

The standard method of producing isotopes, radioactive variations of matter, is to put the material in a nuclear

WHY EUCLID SWITCHED TO COAL!



"We cut costs and provided our expanding plant with a flexible heating system by burning coal instead of gas,"

says D. L. Lawrence, Plant Engineer
The Euclid Road Machinery Co.
Cleveland, Ohio

"Upon expanding our St. Clair Plant, we found we could save money by replacing our gas-fired heating system with a modern coal-burning installation. After we made this change, our plant again doubled in size. Yet the stoker-fed boilers shown on the left continued to supply all our heating needs."

Additional case histories, showing how other types of plants save money by burning coal with modern equipment, are available upon request.

What does it cost you to operate your steam plant?

Chances are that, unless you've modernized in the past few years, you could reduce that cost substantially with modern, bituminous coal-burning equipment.

Modern combustion equipment can give you 10% to 40% more steam from a ton of coal. Up-to-date coal and ash handling equipment can cut your labor costs and provide you with a clean, convenient, dust-free operation.

And with bituminous coal, you will continue to enjoy these advantages for years and years.

BITUMINOUS COAL INSTITUTE

A Department of National Coal Association
Southern Building, Washington 5, D. C.

If you operate a steam plant, you can't afford to ignore these facts!

BITUMINOUS COAL in most places is today's lowest-cost fuel, and coal reserves in America are adequate for hundreds of years to come. **COAL** production in the U.S.A. is highly mechanized and by far the most efficient in the world. **COAL** prices will therefore remain the most stable of all fuels.

COAL is the safest fuel to store and use. **COAL** is the fuel that industry counts on more and more—for with modern combustion and handling equipment, the inherent advantages of well-prepared coal net even bigger savings.

FOR HIGH EFFICIENCY • FOR LOW COST
YOU CAN COUNT ON COAL!



**"Maybe he ain't a good watchdog—
wit' a Cyclone Fence he don't need to be"**

• Watchdogs have been going out of style ever since Cyclone Fence took over the job of guarding valuable property. As a matter of fact, Cyclone Fence is the most widely used property protection fence in the world.

You can buy cheaper fence than Cyclone, but it will cost you more per year. Cyclone Chain Link Fence is the leader in its field because it gives you full value for your dollar. Nothing but brand-new, top-quality material is used

throughout. The posts and top rails are heavy and stiff, so they'll never buckle or sag. The carefully engineered gates will not drag on the ground. The fabric is woven from heavy steel wires that hold their shape and is heavily galvanized after weaving for maximum corrosion resistance.

For the finishing touch, Cyclone Fence is installed by full-time, factory-trained experts to assure a neat, trim fence that stays good looking.

CYCLONE FENCE DEPT., AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
WAUKEGAN, ILLINOIS • SALES OFFICES COAST TO COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS CYCLONE FENCE

Cyclone is the trade-mark name of fence made only by Cyclone. Accept no substitute.

FREE BOOKLET ON FENCE

Our informative booklet is filled with photographs, drawings and graphic descriptions of different styles of fence and gates for the protection of property. Whether you're interested in a few feet of fence or miles of it, you'll find this booklet worth your while. Send for your copy. It's free.

CLIP THIS COUPON — SEND IT TO —

Cyclone Fence, Waukegan, Ill., Dept. 444

Please mail me, without charge or obligation, a copy of your booklet.

Name.....

Address.....

City..... Zone..... State.....



UNITED STATES STEEL

reactor (atomic pile). The major drawback is that ordinarily the radioisotope produced is chemically the same as the material put into the pile. Thus to get radioactive gallium for special medical uses, natural gallium is put into a pile. When the isotope is produced it is extremely difficult to separate the isotope from the natural material.

But gallium is a very toxic product and therapeutic requirements demand that as little of the metal be used as possible to get the required isotope into the body. Reactor-produced gallium isotopes aren't satisfactory.

So scientists turn to the atom smashers that don't have the limitations of reactors. Different types of transitions are possible, depending on what particles are chosen as bullets for the atom smasher. One of these is the making of radioactive gallium from zinc. The isotope can be separated much more easily from the host metal and used for treatments.

• New Elements—By the same token, new elements, such as the plutonium used for bombs, can be produced.

There are many other aspects of nuclear research where cyclotrons or lower-energy machines serve as well as the special high-energy, high-cost machine. Exactly what the scientists will find tomorrow is as much a mystery to them as it is to the layman. They're not quite sure what they will prove when they develop an over-all nuclear theory.



Oilman's Microscope

With this special electron microscope, only one of its particular kind in the U.S. oil industry, scientists of Standard Oil Development Co. study objects 10,000 times smaller than a human hair. Built by North American Philips Co., Inc., the electronic instrument is used to study the structure of greases, carbon blacks, petroleum chemicals, and similar products. Direct magnification with the device is 60,000 times, but it can be boosted to 150,000 times by use of a photographic process.

Certified **BRAD FOOTE GEARS**

Certified
BRAD FOOTE
PRODUCTS

**Copper
Plated**

**No
increase
in
price!**



A NEW WAY FOR YOU TO BUY GEARS

• Now you can specify by brand name the gears or assemblies you need and be sure that every desirable quality for longer life and lower service cost will be built into them. This name—Certified BRAD FOOTE Gears.

Certified BRAD FOOTE Gears are made according to an exclusive BRAD FOOTE formula which controls every step in the manufacturing process. It is your assurance that the gears will have long-wearing teeth and bearing areas, and tough cores that will give service equal to or better than any other gears made.

Copper Plating* permits smooth, quick run-in. It is clean and prevents rust and corrosion before gears are put in service. It's your positive identification of the best gears that money can buy. Yet . . . you pay no more.

The Certificate furnished with Certified BRAD FOOTE Gears and assemblies certifies strict adherence to specifications and the exclusive BRAD FOOTE formula. It proves that "no one shares our responsibility."

*Gears over 30" diameter are protected by copper-colored water-soluble paint which need not be removed before placing in service.

Write today for descriptive literature

BRAD FOOTE GEAR WORKS, INC.

1309 South Cicero Avenue • Cicero 50, Illinois
Bishop 2-1070 • Olympic 2-7700



© BFGW, INC.

subsidiaries

AMERICAN GEAR & MFG. CO. • PITTSBURGH GEAR COMPANY

Phone: Lemont 920
Lemont, Illinois

Phone: SPaulding 1-4600
Pittsburgh 25, Pennsylvania



... It's the chair with
the Fiber Glass Base

No secret though—a Sturgis fiber glass base is just naturally quiet in motion. You roll silently even on rough and uneven floors. It's quite astonishing . . . although no more so than the unique fact that this fiber glass base will never become unsightly, never need refinishing. Nine models of executive and stenographic chairs are now available with fiber glass bases in gray, green, walnut or black.

Engineered for Long Life and Minimum Maintenance

Nylon Thrust Bearing: takes a lifetime of swiveling.

Ball Burnished Spindle Bearing: perfect fit for long life.

Superior Castors: oversize ball bearings, extra wide rubber wheels.

STUR-LON® Finish On Metal Parts: 10 to 20 times as abrasion-resistant as other finishes.



POSTURE CHAIRS

Manufactured in Sturgis, Mich. and Charleston, S. C.
The Sturgis Posture Chair Company, Sturgis, Michigan

THE STURGIS POSTURE CHAIR COMPANY
General Sales Offices, 184 E. Erie St., Chicago 11, Illinois

We'd like a copy of your illustrated folder on chairs with fiber glass bases.

Name _____

Firm Name _____

Address _____

City _____ State _____

THE RESEARCH PATTERN

College Research Is Not Enough

ONE WAY to win friends is to state, in public, that colleges are better suited to carry on basic research than any other group. But privately a large number of businessmen and scientists will beg to disagree.

There are a lot more things wrong with college research, they'll tell you, than the mere fact that there isn't enough of it.

Leading the list of the colleges' ills is the limited size and scope of the typical academic research project. With very rare exceptions, collegiate research involves one or two professors working in a small laboratory, possibly with the help of a few graduate students. Obviously, some useful research can be done this way; and some of the most important discoveries ever made have come from just such isolated labs. But there's an increasing number of projects that don't lend themselves to this type of single-handed progress.

Take friction. Applied researchers badly need to know more about what happens on the surfaces of solids or fluids in motion. A lonely professor in an isolated office or laboratory can add some information on the subject, but can he always accomplish as much as a team of researchers with ample money and ample equipment?

THE SIZE of college projects raises another trouble. The isolated project on a limited budget creates a vacuum of ideas around a college professor. He is likely to become enthused with his first method of attacking the problem and race on—carried only by his own momentum. He gets few outside ideas and few critical appraisals of the direction of his research.

Many supporters of collegiate research are sure this is the way it should be. They believe that any attempt to direct basic research destroys the academic freedom of the researcher and throws barriers in the way of his effectiveness.

And yet fundamental projects in the large national laboratories have proved that some moderate direction may help. A few big corporations with their own basic research projects have shown that a scientist doesn't necessarily bog down

when you put a few light restrictions on him.

THE COLLEGE TRADITION of small-scale, isolated work springs largely from two causes. One cause is the lack of money for basic research. Most college projects are backed by private foundations or national agencies that must spread their funds as widely as possible. Thus, each project has to be satisfied with a relatively small grant.

An even more important cause is the philosophy of college faculties. A good many U.S. universities judge their teachers—and in some cases promote them—on the basis of each teacher's success in publishing articles in technical and scholarly journals. For this reason, a professor with a project idea is likely to guard it jealously. He's likely to work on it alone so that he can take full credit for the technical write-up he'll publish later.

This system can do more to stultify research than can a little administrative restriction. If a professor's aim is to produce written papers, he is likely to concentrate on projects that show the greatest chance of early success. He may skim the cream off the mass of possible scientific studies and leave the hard ones for someone else.

When the collegiate researchers do undertake a significant project, even one of ample interest to industry, they're often troubled by a lack of satisfactory scientific instruments and equipment.

THUS, IT'S HARD to know whether colleges can carry the nation's burden of fundamental research. Obviously, college research is needed. It is needed to help educate the coming scientists and researchers, and it is needed as a detached source of scientific information. But other sources of basic research are necessary, too.

Large national laboratories like those growing up in nuclear science could supply this need in other fields. Such government support of science would be very costly. The only other alternative is for more large companies to apply their research talents and research dollars to some of the giant areas of scientific darkness.

Don't wait...Investigate the Kearney & Trecker **TOOL-LEASE** PROGRAM

Here's a common sense approach to your plant modernization program

It's the most significant opportunity ever offered users of milling machines and precision boring machines

In these times, modernization is the soundest approach to meeting increasingly competitive conditions. And the best way to modernize — to improve products, cut costs, gain productive flexibility — is to retool with new machines. Today, Kearney & Trecker's new Tool-Lease Program offers you an unmatched opportunity to "junk the clunkers" that are nibbling away at your profits. It's time to act. Don't wait — investigate!

These are only a few of the advantages Tool-Lease offers you

You can try out new machines in your own plant . . . without being obligated to purchase them. You can get hitherto impossible flexibility and capacity to take advantage of changing production requirements without risk of obsolescence. Last, but not least, you can expand production without tying up working capital, going into debt, or impairing future borrowing capacity.

Tool-Lease helps you get the exact milling or boring machines you need

Under Tool-Lease, you can rent any Kearney & Trecker standard knee or bed type milling machine or precision boring machines. If you

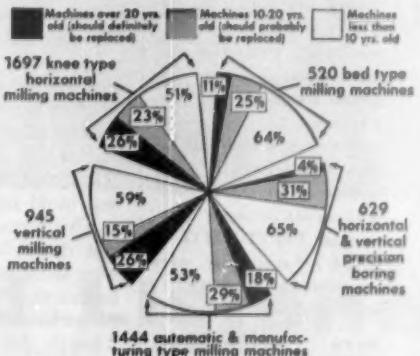
require special machinery or heavy-duty CSM bed-types, special agreements will be considered.

Three basic plans give you varying options to continue or terminate the lease or purchase the equipment.

For complete details on Tool-Lease . . . help in analyzing your milling and precision boring needs — see your Kearney & Trecker representative or mail coupon to Kearney & Trecker Corp., 6784 W. National Ave., Milwaukee 14, Wis.

THE CRITICAL PICTURE OF CREEPING OBSOLESCENCE . . . AND HOW TO STOP IT!

Let's take a typical basic industry as an example — Agricultural equipment. Of the 5235 standard knee type horizontal, vertical, bed and manufacturing milling machines and precision boring machines in use today — which could be replaced by Tool-Lease equipment — 26% are 10-20 years old, 19.9% are more than 20 years old.



Kearney & Trecker Corporation

6784 W. National Ave., Milwaukee 14, Wis.
Please send me Bulletin TL-10A with details on the Tool-Lease Program. Check here if you would like to have a representative call on you as soon as possible (or call Milwaukee, G.Rosfield 6-8300).

Name.....

Title.....

Company.....

Address.....

City..... Zone..... State.....



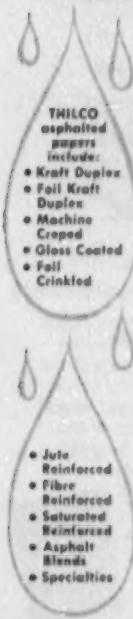
© 1954

Moisture is a thief!



**Don't let poor
wrapper protection
rob you of profits!**

Thilco Wrap-DRI gives you money-saving WATERPROOF protection that counts



If your product demands protection from water or water-vapor penetration, or requires retention of moisture-vapor content — there's a Thilco WRAP-DRI asphalted paper for the job. Made in standard and custom grades from M.F. or M.G. plain or colored krafts, Wrap-DRI may be crinkled, creped, reinforced, plasticized or foil laminated — and also special treated for added wet strength, mold-resistance or rust inhibiting. Wrap-DRI comes in roll widths up to 10 feet wide without lap or seam! We also can PRINT-DECORATE it for identity, sales-attention and simplified inventory control.

Get the complete facts.
Write for samples and brochures.



THILCO
Functional Papers

THILMAY PULP & PAPER COMPANY
KAUKAUNA - WISCONSIN

NEW YORK • CHICAGO • DETROIT • MINNEAPOLIS • CINCINNATI

CATALOG published by North American Aviation, Inc., calmly offers . . .

Nuclear Reactors for Sale

North American will design and build any of three kinds for you. But it won't take your money unless you meet the approval of the Atomic Energy Commission.

The picture above shows a page out of the nation's first catalog in the field of nuclear physics. It's published by North American Aviation, Inc., which has been experimenting in the field since 1948.

Like any other manufacturer's catalog, this one has something to sell. The merchandise: nuclear reactors. The catalog gives some general information on reactors for research use in industry or medicine, goes on to list specifications and other data on three kinds of reactors that North American will design and build for customers.

This gives wings to the imagination. But don't head for the nearest hardware store and order a reactor for your basement. North American's catalog notwithstanding, it isn't that easy. Though the regulations are easier than they were a few years ago, the Atomic Energy Commission still keeps a tight control over construction and ownership of reactors. Before you can buy one from North American, you must meet AEC's approval.

• **The Rules**—North American undoubtedly would not have issued the catalog, however, if it didn't expect to make a few sales. And AEC's rules, which the atom commission is now trying to clarify, are not by any means designed to discourage prospective atomic researchers.

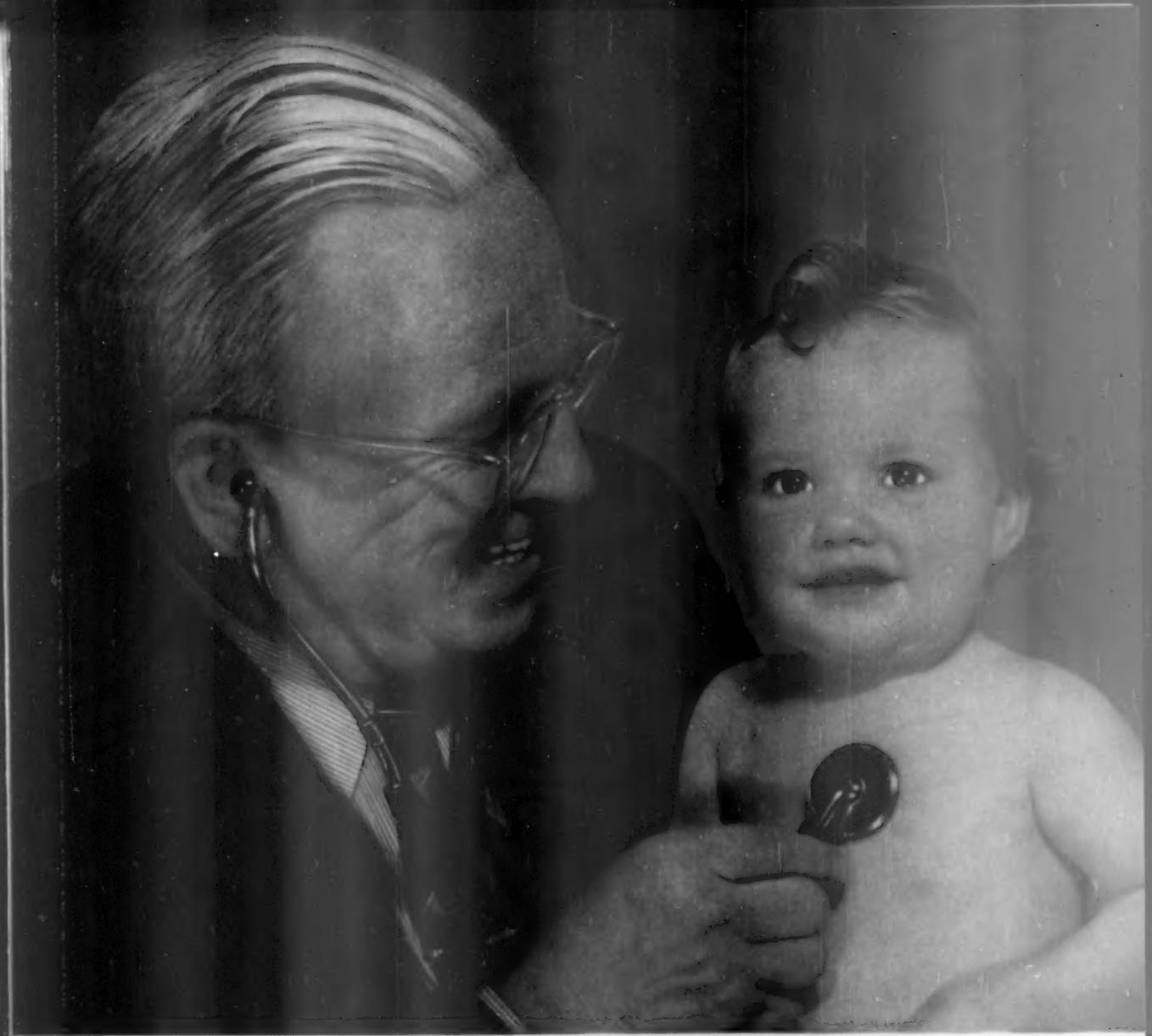
Thomas H. Johnson, director of

AEC's division of research, has explained the rules as concisely as anyone. They're based on AEC's loaning of fissionable material. This material is essential to reactor operation, and the only way you can get it is through AEC. The commission will lend it out, rent-free, provided that:

- The material isn't in immediate demand for use by AEC.
- The institution seeking the material has an adequate financial plan for building and operating the reactor.
- The reactor is designed and operated by "responsible and technically competent people."
- The reactor is planned for use in a research program that will contribute to training in the field of nucleonics.
- The reactor meets AEC's requirements for safety and security.

• **Qualifiers**—North American and other companies now working on reactors feel that design and construction by "responsible and technically competent people" is where they fit into the picture. Among others in the field are American Machine & Foundry Co., Babcock & Wilcox Co., Bendix Aviation Corp., Foster Wheeler Corp., General Electric Co., Kaiser Engineers, Walter Kidde Nuclear Laboratories, Inc., Nuclear Development Assn., and Vitro Corp. of America.

North American's experience includes a water boiler reactor—one of the three



Photograph by Willman

The Good Listener

Nobody listens more attentively than your doctor listens, and nobody hears such vital sounds. Among the sounds that have special meaning for him are the first cry of a baby . . . your heartbeat, your respiration and other barely audible sounds that may murmur of illness or tell of good health.

Yet because your doctor is dedicated to the fight against illness, few sounds give him more pleasure than the news of some proved medical discovery that will help him better to protect the health of you and your family. From wherever in the world it may come, you may be sure he will hear of it and will bring you its benefits if needed.

The making of just such news has long been the aim of medical research at the Lederle Laboratories Division of American Cyanamid Company. Indeed, it was from Lederle that the news came of the development of Aureomycin® Chlortetracycline, Achromycin® Tetracycline, and also certain types of sulfa drugs. And it is the purpose of Cyanamid's continuing research to go on making news that will mean good listening for your doctor, good health for you.

*Trade-mark



AMERICAN *Cyanamid* COMPANY

30 ROCKEFELLER PLAZA, NEW YORK 20, N.Y.

They beat the freeze



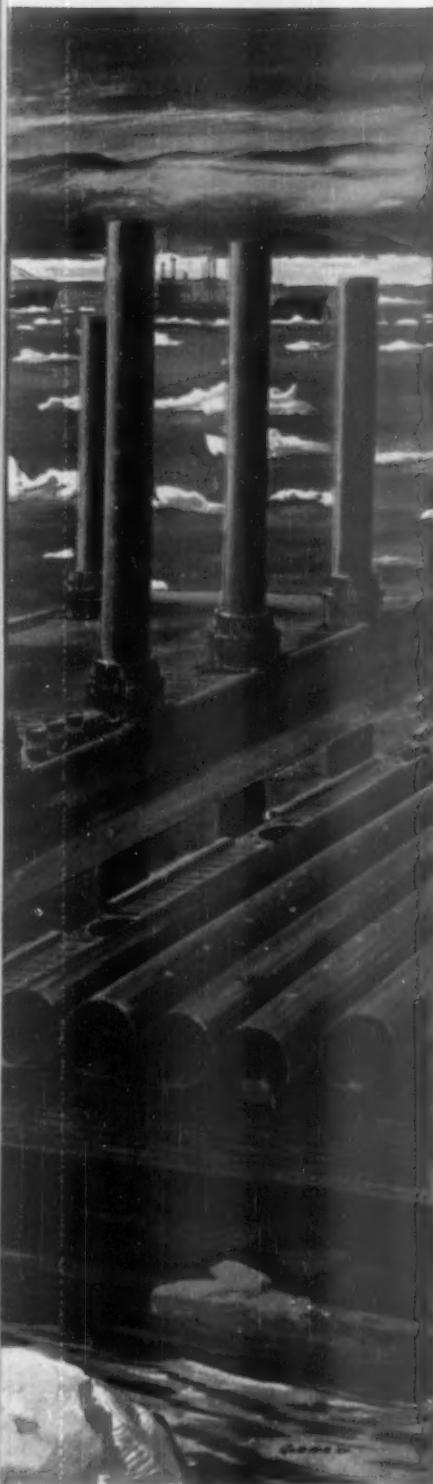
AIR BRAKE DIVISION . . . air brake equipment, brake slack adjusters, anti-wheel-slide devices, compressors, and accessories for all rail vehicles and trolley buses.

UNION SWITCH & SIGNAL DIVISION . . . centralized traffic control, car retarders, automatic train control, train communication and interlocking systems and apparatus.

LE ROI COMPANY . . . internal combustion engines, portable air compressors, Tractair units, rock drills for the construction and mining industries.

with super-secret

"Operation Blue Jay"



IT was the biggest secret military operation since D-Day in Normandy. Thousands of men poured into the 60-below-zero cold of northernmost Greenland and proceeded to chop a year-round big bomber base out of the rock-like frozen ground at Thule—just 900 miles from the North Pole.

The harbor at Thule (pronounced Tooley) is locked in ice 10 months of the year. Dozens of ships had to be unloaded, but first they had to have a pier. Using ordinary construction methods, this job *alone* could take a year, and cost an extra million dollars.

But right on the heels of a charging ice-breaker came four huge barges. Long sections of 6-foot-diameter pipe slid down into holes that ran through the barges. An air compressor started up. With a hiss, huge air jacks let the pipes down to the bottom of the bay, and drove them into solid foundation. Then, like a monkey on a stick, the barge pulled itself up along the pipe caissons . . . and suddenly became a 1,000-foot-long pier.

In no time at all, ships were alongside. 150,000 tons of cargo were discharged in 6 weeks—just in time to beat the crippling ice.

This modern miracle of pier construction was conceived by DeLong Engineering & Construction Company of New York, an important customer of Westinghouse Air Brake Company. For DeLong, we worked out a simple system of precision Westinghouse pneumatic controls that enabled these monstrous piers to be raised as little as $\frac{1}{2}$ of an inch at a time. Once again, a Westinghouse pneumatic control system does an outstanding job for industry—and the nation.

If you need pneumatic control systems or air compressors, get in touch with our Industrial Products Division. To solve other tough problems, call on any of the Westinghouse Air Brake Company divisions or subsidiaries listed below.

INDUSTRIAL PRODUCTS DIVISION, Wilmerding, Pa.
... air compressors, cylinders, actuators, air control devices
of all kinds; engineered pneumatic control systems.

Westinghouse Air Brake COMPANY

EXECUTIVE OFFICES:
THREE GATEWAY CENTER, PITTSBURGH 22, PA.

MELPAR, INC. . . . research, development and manufacture of military electronic systems. Also serves as central research laboratory for Westinghouse Air Brake Company.

GEORGE E. FAILING COMPANY . . .
portable drilling rigs for oil, water and mineral exploration and a variety of equipment and supplies.

LE TOURNEAU-WESTINGHOUSE COMPANY . . . earth moving equipment, including tractors, scrapers, haulers and other construction tools.



The Key to Shopping Ease



Sketched in the
Lobby of
The New Yorker

A HILTON GUEST ENJOYS THE BEST

In New York
THE WALDORF-ASTORIA
THE PLAZA
THE ROOSEVELT
THE NEW YORKER
In Washington, D. C.
THE MAYFLOWER
In St. Louis, Mo.
THE JEFFERSON
In Columbus, Ohio
THE DESHLER HILTON
In Fort Worth and El Paso, Texas
THE HILTON HOTEL
In San Bernardino, California
ARROWHEAD SPRINGS

In Chicago
THE CONRAD HILTON
THE PALMER HOUSE
In Los Angeles
THE TOWN HOUSE
In Dayton, Ohio
THE DAYTON BILTMORE
In Albuquerque, New Mexico
THE HILTON HOTEL
In San Juan, Puerto Rico
THE CARIBE HILTON
In Madrid, Spain
THE CASTELLANA HILTON
In Istanbul, Turkey
THE ISTANBUL HILTON
(Opens This Summer)

Family groups on a shopping holiday, vacation or business trip appreciate the convenient locations, fine accommodations and friendly hospitality that await them at distinguished Hilton Hotels around the world. Ideally situated in the center of metropolitan cities, all Hilton Hotels are close to shops, theatres, offices, and entertainment areas. Although each hotel is known for its individuality, the same high standards for food, service and quality prevail throughout the entire group.

Hilton  **Hotels**
AROUND THE WORLD
Conrad N. Hilton, President

EXECUTIVE OFFICES • THE CONRAD HILTON • CHICAGO 5, ILLINOIS

types listed in the catalog—which the company built in 1952 and operates at its Downey (Calif.) plant. The company has also built a water boiler reactor for California Research & Development Co. at Livermore, Calif.

The water boiler, or solution type, reactor operates at low power and is rated up to 50 kw. The two other types offered by North American are larger. One is a homogeneous reactor rated to 160 kw.; the other is a pool type reactor that can be built with energy ratings up to 1,000 kw.

RESEARCH BRIEFS

A \$2-million center for expanded research on health problems has been dedicated near Newark, Del., by E. I. du Pont de Nemours & Co. The new building will add to the facilities of du Pont's Haskell Laboratory for Toxicology and Industrial Medicine, established in 1935 to test du Pont products for elimination of health hazards.

Bioluminescence, scientific name for the "cold light" given off by certain animals and plants, was the subject of a conference held last week at Pacific Grove, Calif., by the National Science Foundation. Cold light interests biochemists and biophysicists studying life processes and may also interest engineers because of its efficiency in producing light with very little energy.

Perfect crystals of pure iron have been produced for the first time by scientists at General Electric Co.'s research laboratories at Schenectady, N. Y. The crystals are 100 times stronger physically than any previously known metallic crystals. The new development may unlock many of the secrets of metals; until now, actual strength of crystals has been largely a matter of guesswork.

Mysterious fires that occur in sealed railroad cars carrying cotton will be studied in a research project sponsored by Southern Pacific RR, to be carried out by Stanford Research Institute. The fires are infrequent but costly. Nobody knows yet exactly what causes them.

The earth's prevailing winds are generated by immensely powerful forces stirred up in great storm areas, according to a new theory resulting from research work by weather experts at Massachusetts Institute of Technology. This theory is in conflict with the traditional theory that prevailing winds are caused by air rising at the equator and moving toward the poles, where it is cooled and drops to ground level.



ZIPPO keeps your trademark right in your customer's hand

Suppose you could figure out a way to have your customers carry your trademark always with them, and look at it 20 or more times a day year after year? Here's how to do it! Just give them Zippo as business gifts. With your trademark on its gleaming surface, Zippo does the rest.

People are proud to get Zippo because of their superb quality. They use them because of their easy operation and downright faithfulness. And

once a fellow gets to using a Zippo, it seems to become part of him. He misses it too much to leave it behind. It goes into action at meetings and banquets—everywhere from theater parties to camping trips.

Every Zippo is actually guaranteed to work forever. That gives your trademark or slogan the utmost mileage. The investment is modest—the prestige value very high. Mail coupon for all details.



ZIPPO®

GUARANTEED TO WORK FOREVER

ZIPPO MANUFACTURING COMPANY, BRADFORD, PA.

In Canada: Zippo Manufacturing Co., Canada Ltd., Niagara Falls, Ont.

Zippo Manufacturing Co.
Dept. B-4, Bradford, Pa.

Please give me full information about business gift Zippo—prices in large or small quantities, time of delivery, opportunity to use color, and the help your design department will give us in making a beautiful and distinctive gift.

Name _____

Firm _____

Address _____

PLASTICS

● They came to life suddenly during the shortage days of World War II.

● And now look at them. Their growth line soars far above that of total U.S. production—which is no laggard itself.

● The newer plastics are the industry's brightest hopes. Their versatility and unusual properties have won them all kinds of jobs.

● Once thought of as substitutes, plastics have now reached the status of full-fledged engineering materials. They're . . .

INDEX 1935-39 = 100

2000 —

1800 —

1600 —

1400 —

1200 —

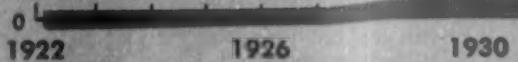
1000 —

800 —

600 —

400 —

200 — U.S. Industrial Production



Data: Federal Reserve Board, Tariff Commission

Stand-Ins That Made Good on

The story told by this chart is like the story of a slow-starting, long-drawn-out baseball game. Nothing spectacular happened for a long, long time. The innings came and went. The spectators gradually lost interest. They began thinking of other things that might be more fun to watch.

And by the end of the eighth inning, convinced that nothing exciting was going to happen, most of the spectators had departed.

They should have stayed. Look at the scoreboard now.

• **Home Run**—It started, almost a century ago, with billiard balls. Idly tossing one in his hand one day in the

1860s, an American inventor named John Wesley Hyatt (ancestor of General Motors Corp.'s Hyatt Bearings Div.) got to wondering whether ivory was, after all, the best raw material for this particular product. It was expensive. Elephants, no billiard players themselves, were loath to give the material up.

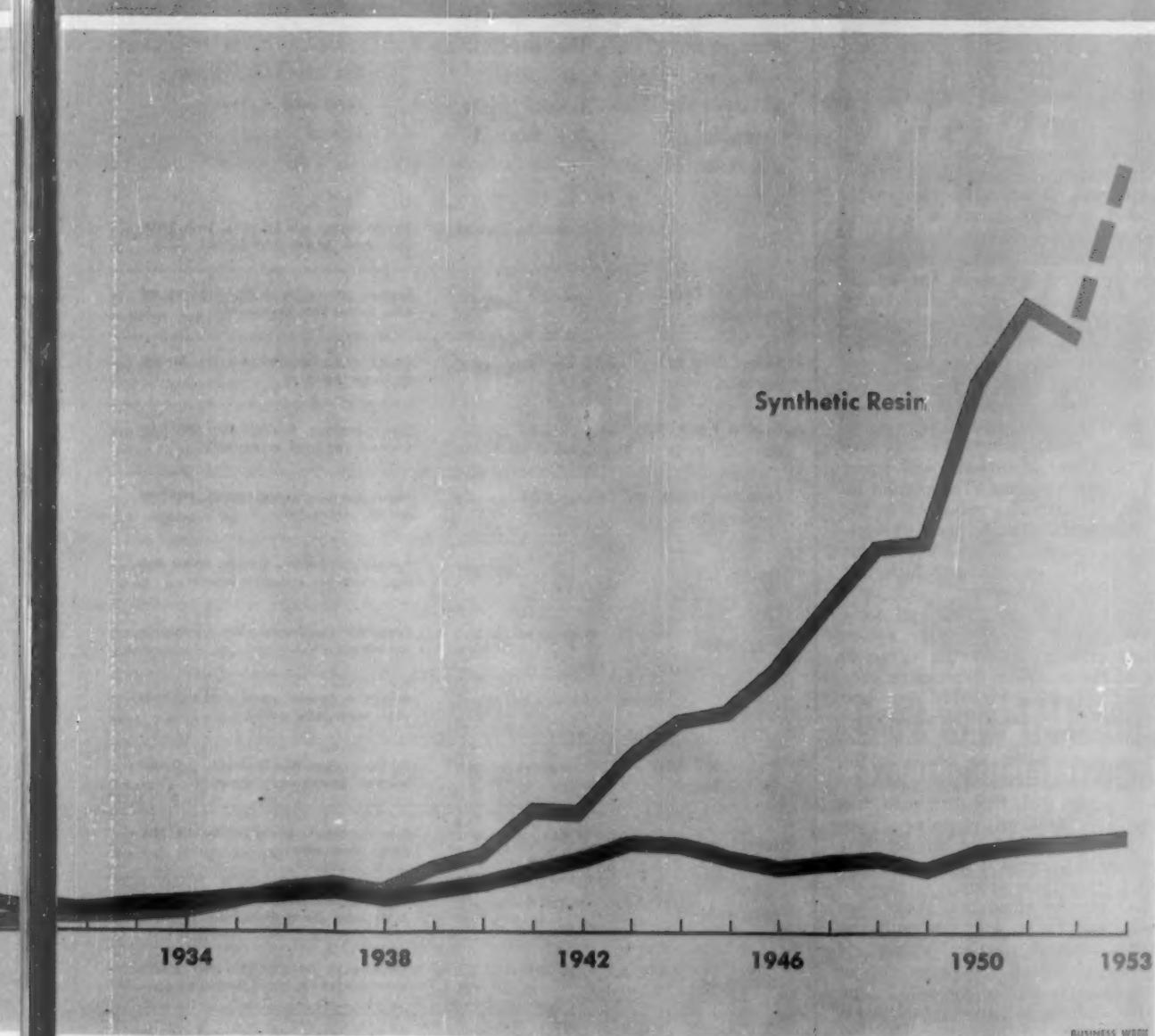
And the store of mammoths and other prehistoric ivory-bearing beasts, buried in such places as Siberia, was fast diminishing.

Hyatt retired to the laboratory. In 1868, he developed cellulose nitrate, a material that seemed to have all the properties required of a billiard ball.

He dubbed it Celluloid. It was the first of the modern plastics.

Probably it was unfortunate that this first plastic should have been developed as a substitute for something else. Plastics, from then on through the next 75 years, were thought of as substitutes. Very often, they were thought of as second-rate substitutes.

But that didn't stop their development. Literally thousands of varieties oozed and bubbled out of the test tubes. They became commonplace. Old Celluloid became so commonplace that it lost its capital initial and, thus shorn, sidled humbly onto the printed page as celluloid. Much the same thing hap-



BUSINESS WEEK

Their Own

pened to Bakelite. Nothing of all this was unusually spectacular. By the 1930s and 1940s, most U.S. businessmen were looking elsewhere for excitement.

And, behind their backs, the plastics industry caught fire. It began to crackle in 1942 (chart), touched off by wartime shortages of other, older materials. And it hasn't stopped yet.

• **Records**—Last year, the Society of the Plastics Industry estimates, production of synthetic resin reached nearly 3-billion lb. That's a 30% increase over 1952, twice the volume of 1949, and well over five times the volume of 1943.

And not only that. After decades of second ranking as substitute materials, plastics have reached the level of respectability held by metals, woods, and ceramics. Plastics are now considered full-fledged engineering materials in their own right.

It's doubtful, of course, that plastics will ever replace the older materials completely.

Steel and wood have properties that plastics don't have, and possibly never will have. On the other hand, plastics have properties of their own that can't be matched by the old-timers. Plastics tonnage has already passed that of aluminum, most popular of the nonferrous metals, and is fast approaching that of glass. And the rise of the plastics industry has already caused revolutions in such industries as floor coverings,

pipe, paint, kitchenware, packaging, electronics, and buttons.

How much further plastics will go is a multimillion-dollar question. Men in the industry will tell you that plastics have barely begun to cash in on their possibilities. There will be minor dips and humps in the growth curve, these men predict, but the chart line will maintain its present angle through most of the next 10 years.

• **Competition**—That's a tremendous amount of growth. Few businessmen, in or out of the plastics industry, will be able to ignore it.

Suppose you're a manufacturer of an all-metal consumer product. Top-notch engineering and vigorous selling have put your product in top place on the market. You're sitting in your office, contemplating a joyous future,

Here are today's plastics, and
the things you can and can't
do with them



when one of your salesmen strolls in with some news he has picked up from a customer. Your major competitor, it seems, is running tests on a plastic version of the product. He feels the plastic product will have some real advantages over the metal one—advantages that he intends to advertise loudly from coast to coast.

You can't ignore it. The plastics industry has caught up with you.

• **Way Out**—Perhaps you counter the blow by telling your engineering department to go out and buy some equipment and resin, and start experimenting. But the department will report that it isn't that easy. The plastics industry has matured a good deal in the past few years. The business of working with plastics has become highly technical; the entrance fee is high, and it goes higher every day.

What do you do? First, get some expert advice. You can hire a consultant or a research outfit, or go to one of the technical societies or engineering colleges. Probably your best bet is to go to one of the major resin suppliers—du Pont, Bakelite, Monsanto, or any of the other big names in the field. These companies maintain consumer service staffs that delight in handling such problems as yours. They won't charge you for the service; their payment will come if and when you start buying their resins.

You may be afraid that these companies will try to lure you into the plastics business whether or not it's to your advantage. Actually, they're more likely to do the opposite. One of the industry's biggest problems is misapplication of plastics. The big companies do everything they can to keep plastics out of jobs in which the materials might fail—in which plastics might get a bad name.

• **Advice**—The company to which you go for advice will look your product over carefully. It'll try to determine whether any of the unusual properties of plastics would be worth the cost of changing over. It might show you how certain kinds of plastics can give your product more eye appeal, or cut down on rusting or corrosion, or add strength. If you decide plastics are what you want, the company will help you plan for production—or else suggest a custom molder familiar with your specific kind of plastic.

Another possibility: The company might advise you to keep making your product out of metal, but to package it in some kind of plastic. A jazzy sty-

When you say
plastics, you
probably mean
these families
of materials . . .

They were first
produced com-
mercially in the
U. S. about . . .

You have probably seen
them used in these
familiar products . . .

Acrylics	1931	Aircraft turrets, auto tail lights, brush backs, signs (dynal, Acrylon, Orion textiles)
Alkyds and Rosin Modifications	1926	Linoleum surfacings, paints for refrigerators and autos, ignition parts, magneto rotors
Amines (Urea and Melamine)	1929	Buttons, dishes, laminated table tops, housings for kitchen appliances
Cellulose Plastic Materials	1868	Display packaging, irrigation pipe, frames for eyeglasses (rayon and acetate textiles)
Coumarone-Indene and Petroleum Resins	1913	Asphalt floor tiles, aluminum paints, waterproof coatings, printing inks
Epoxies	1948	Printed circuit backing, adhesives, surface coatings, transformer and motor laminates
Fluorocarbons	1943	Pump diaphragms, chemical tubing, high-temperature insulation
Nylon	1938	Gears, slide fasteners, combs, tumblers, tennis racket strings (nylon textiles)
Phenolic and Other Tow Acid Resins	1907	Telephone handset, radio-TV cabinets, shell molding, dials, grinding wheels, plywood
Polyethylene	1941	Squeezable bottles, semi-rigid kitchenware, packaging, coaxial cables
Polyester Resins	1942	Reinforced plastics for auto bodies, boats, translucent panels (Dacron textiles)
Silicones	1943	Insulation for generator coils, auto polishes, waterproof coatings, circuit breakers
Styrene Resins	1938	Kitchen housewares, refrigerator parts, toys and novelties, wall tiles, lighting fixtures
Vinyl Resins	1936	Safety glass interliner, floor coverings, garden hose, phonograph records (vynil textiles)

rene box or gaily printed polyethylene bag may do more to keep your product in the race than any amount of reengineering.

• **Blue Sky**—That's the kind of problem U.S. businessmen will be running into during the next 10 years. The plastics industry is playing for keeps, and it's putting all it has into the effort.

If you don't believe the industry is serious, look at some of the ideas now sprouting in the laboratories:

- Some day, homes and skyscrapers

may be floored with no more trouble than it would take to pump a liquid resin into a cast. Being a liquid, the material would need no leveling. Since it would contain no water, there would be no problem of dampness or shrinkage. The resulting floor would be smooth, colorful, and tough.

• There's talk of using plastics as mortar around bricks or stone. Mortar is the weak part of a brick wall. It's relatively hard to handle, and it can be penetrated by moisture. Plastic mortar

**They have these
important and often
unique properties . . .**

**But they also have
these limitations or
disadvantages . . .**

Optical clarity, good weather resistance, wide color range, shatter resistance, machinability

Relatively soft surface, subject to scratching

Fast curing, good dimensional stability, good electrical insulation, good heat resistance

Low impact resistance

Unlimited color range, good electrical insulation, resistance to organic solvents

Requires great care in molding

Toughness, high impact strength, ease of fabrication, lustrous finish, good electrical insulation

Relatively low heat resistance, will swell with changes in humidity and temperature

Resistance to water and caustic cleaners, compatibility with compounding ingredients, gloss

Poor resistance to solvents

Excellent adhesion, resistance to chemicals and heat, can be cured at room temperatures

Expensive

Extreme resistance to corrosive agents and solvents, wide temperature range, high impact strength

Poor adhesion for use with other material, expensive

Good strength and toughness over wide temperature range, wear resistance, self-lubricating

Requires very tight mold, expensive

Hard and rigid, good temperature range, strong, good electrical insulation, low water absorption

Limited to dark colors

Inert to solvents, flexible and tough over wide temperature range, non-toxic, odorless, tasteless

Streaky colors, waxy or greasy feel, film is not shiny

Weather resistance, can be formed with low pressure, strong, colorful, compatible with many fillers

Will sometimes crack or craze in curing, high mold shrinkage

Extreme heat resistance, low water absorption, good dielectric properties over wide frequency range

Difficult to mold, requires long curing cycle, expensive

Lightest of commercial plastics, excellent moldability, unlimited color range, tasteless, odorless

Relatively low impact resistance, poor weather resistance

Tough and strong, wide color range, excellent electrical insulation, resistance to chemicals

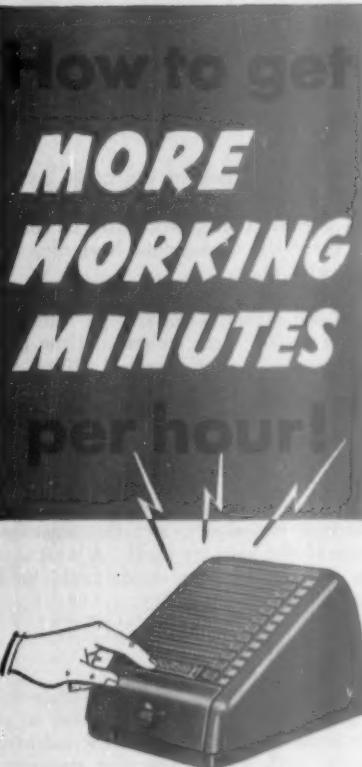
Plasticizers tend to migrate over a period of time

can be made as strong as the bricks themselves. The only problem still to be solved is that of heat resistance. If a fire broke out, the mortar might melt. High-temperature plastics are available, but right now they're prohibitively costly.

* The acrylic plastics (chart, above)—bearing trade names such as Lucite (du Pont) and Plexiglas (Rohm & Haas Co.)—have long had an eye on the huge glass market. These plastics are lighter than glass and less brittle, and they're

better heat insulators. They'd keep a house warmer in the winter, cooler in the summer. Their only real drawback is the fact that—unlike glass, one of the very hardest substances—they scratch easily. Scientists are now working on combinations that may lead to a harder-surfaced clear plastic.

* General Electric Co. is experimenting with atomic bombardment of another type of plastic—polyethylene—to make it able to stand higher temperatures. If GE's techniques prove in any



Don't walk—TALK with Executone intercom!

No need to waste time shuffling between offices for information and instructions. Just push a button and talk! Walking time becomes *working* time. Telephone lines are kept open for outside calls; roving employees are located *immediately*! Production is increased, costs are cut. Installations in every type of business and organization prove that Executone pays for itself many times over.

Executone
INTERCOM
SYSTEMS

EXECUTONE, INC., Dept. D-4
415 Lexington Ave., New York 17, N.Y.

Without obligation, send booklet describing how Executone helps cut costs. I am particularly interested in:

- Inter-office communication
- Intra-plant communication
- Switchboard relief
- Locating personnel

Name _____ Title _____

Firm _____

Address _____ City _____

In Canada—331 Bartlett Ave., Toronto

Here are some of the leading companies that supply the industry's basic plastics →

way practical, one of the major weaknesses of plastics will disappear. Indeed, it's possible that plastics may be made to stand the tremendous heat of a jet or rocket engine.

• Check Points—These things are all past the dream stage, though some of them are not very far past. How fast they will approach practical reality depends largely on how fast the industry progresses toward maturity. And that depends on what happens in the industry's four major fields of development.

The four are materials, markets, production techniques, and the organization of the industry itself. A weakness in any one of these fields could hold up the whole parade.

I. Materials

A basic problem of the plastics industry, a really deep-down problem, is its newness. The materials the industry works with are so new that engineers and chemists still haven't tested them thoroughly, or found out what can and can't be done with them.

The prices of many of these materials are painfully high. These prices won't come down until production goes up. Production won't go up until plastics fabricators learn more about the materials, become familiar with them, find out how to handle them. And not many fabricators are likely to do much experimenting with prices so high. It's a vicious circle.

• The Consumer—The troublesome effects of newness are probably most pronounced at the consumer level. The industry has grown faster in the past decade than the consumer's knowledge of its products. This can lead, and has led, to all sorts of trouble.

Perhaps the consumer happens to kick a polystyrene toy under the radiator. The toy melts out of shape. Henceforth, the consumer harbors a deep distrust of all plastics. He doesn't know there are many other types that won't melt under a radiator.

The metals industries, being much older, escape this kind of trouble. The fact that copper occasionally turns green has no influence on the consumer's regard for other metals. He knows that other metals behave in other ways. It's a matter of familiarity.

• The Name—The industry has grown so huge so suddenly, in fact, that there hasn't even been time to teach the layman its nomenclature. What is a plastic, and what isn't? Very few peo-

TODAY

Here's How The Industry Shapes Up On A Tonnage Basis . . .

Bakelite Co.
Catalin Corp. of America
Dow Chemical Co.
General Electric Co.
GoodYear Tire & Rubber Co.
Koppers Co., Inc.
Monsanto Chemical Co.
Naugatuck Chemical, division of
U. S. Rubber Co.
Borden & Hoechst Co.

American Cyanimid Co.
Bakelite Co., division of
Union Carbide & Carbon Corp.
Barrett Division, Allied
Chemical & Dye Corp.
Borden Co.
Catalin Corp. of America
Monsanto Chemical Co.
Perkins Glass Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Syver Corp.

AMINOS
(Urea and
Melamine)

8.7

STYRENE RESINS

18.1

VINYL RESINS

18.0

Bakelite Co.
Borden Co.
Dow Chemical Co.
Diamond Alkali Co.
Dow Chemical Co.
E. I. du Pont de Nemours & Co., Inc.
Firestone Plastics Co.
General Tire & Rubber Co.
B. F. Goodrich Chemical Co.
GoodYear Tire & Rubber Co.
Monsanto Chemical Co.
Naugatuck Chemical
Shawinigan Products Corp.

ple outside the plastics industry—and not all the people inside—can answer that question adequately.

The U.S. Tariff Commission, which keeps the official industry statistics, uses a breakdown like that shown in the chart above. This includes a lot of materials the layman doesn't ordinarily think of as plastics, and it leaves out some things that seem like naturals.

It leaves out, for instance, synthetic fibers—although they're made of practically the same materials as some other products that are included in the list.

The fibers are left out because they're felt to belong in a separate industry. For a like reason, the list ignores synthetic rubber and the natural plastics such as rubber, shellac, rosin, and asphalt. These materials formed the backbones of industries that existed long before the materials now called plastics came into being. Casein, a plastic made from milk, is left out for another reason—the fact that production is relatively tiny.

Included in the list are some things the layman would never have thought

Bakelite Co.
Barrett
Borden Co.
Catalin Corp. of America
Benz Plastics & Chemicals, Inc.
General Electric Co.
Monsanto Chemical Co.
Plastics Engineering Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Shaw-Walker Varnish Co., Inc.

PHENOLIC and OTHER TAR ACID RESINS

16.9

4.6

10.3

COUMARONE-
INDENE AND
PETROLEUM POLYMER
RESINS

6.2

ALKYDS and
ROSIN MODIFICATIONS

17.2

Barrett Division, Allied Chemical & Dye Corp.
Neville Co.
Pennsylvania Industrial Chemical Corp.

American Cyanamid Co.
Atlas Powder Co.
Barrett (molding materials)
General Electric Co.
Hercules Powder Co.
Reichhold Chemicals, Inc.
Rohm & Haas Co.
U. S. Industrial Chemicals Co., division of National
Distillers Products Corp.

American Molding Powder & Chemical Co.
Celanese Corp. of America
Dow Chemical Co.
Eastman Chemical Products, Inc.
E. I. du Pont de Nemours & Co., Inc.
Hercules Powder Co.
Gorling Products, Inc.
Monsanto Chemical Co.
Bixen Nitration Works

IN THE FUTURE

Keep your eye on these . . .

ACRYLICS

E. I. du Pont de Nemours &
Co., Inc.
Rohm & Haas Co.

EPOXIES

Bakelite Co.
Ciba Co., Inc.
Devoe & Raynolds Co., Inc.
Shell Chemical Co.

FLUOROCARBONS

Bakelite Co.
E. I. du Pont de Nemours &
Co., Inc.
M. W. Kellogg Co., subsidiary
of Pullman, Inc.

NYLON

Chemstrand Corp.
E. I. du Pont de Nemours &
Co., Inc.

POLYESTER RESINS

At least 41 producers led by
American Cyanamid Co.
Bakelite Co.
Barrett (Plaskon)
Celanese (Marco)
Naugatuck Chemical
Pittsburgh Plate Glass Co.
Rohm & Haas Co.

POLYETHYLENE

Bakelite Co.
Barrett (Plaskon)
E. I. du Pont de Nemours &
Co., Inc.

SILICONES

Barrett (Plaskon)
Dow Corning Corp.
General Electric Co.
Linde Air Products Co.,
division of Union Carbide
& Carbon Corp.

BUSINESS WEEK

of. For instance, there are the synthetic resins that go into adhesives, laminates, and paints and varnishes. It would probably surprise the layman to learn that the makers of paints, varnishes, and other surface coatings form the plastics industry's biggest group of customers. They bought some 700-million lb. of plastics last year, and will probably buy still more this year. • Basis—The chief survivors of all these border disputes are the synthetic resins and certain cellulose compounds. These are the materials now properly called

plastics. Their basic raw materials are generally petrochemical or coal-tar chemicals—acetylene, styrene, ethylene, chloride, and the like.

But there's more to the plastics than these basic raw materials. In each plastic, the basic chemicals are mixed with one or more of a vast group of other materials. These other materials may be plasticizers, to make the plastic more workable; or fillers, to give it bulk. They may be modifying chemicals to make it harder, or more heat-resistant, or tougher, or more elastic.

Thus, each main type of plastic can appear in hundreds of different varieties. Each of the 14 plastics listed on the chart on page 102 is merely the family name of a whole group of more or less similar plastics.

Hence, the plastics business is clearly no longer one for novices. It's a highly technical field, and to succeed in it you need a terrifying amount of special knowledge.

• Branches—To make things even more complicated, all plastics are broken down in still another classification. A



Protect your inactive business records with proper storage. LIBERTY STORAGE BOXES are constructed of highest test

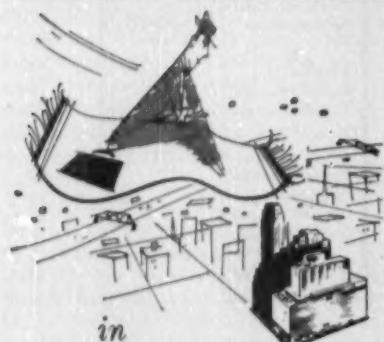
corrugated fibre-board. Dust-proof, spill-proof protection. Liberty's storage system assures fast-finding of any record. Try LIBERTY BOXES for quality and low cost. 25 stock sizes.

Held by leading stationers.



Clip this ad to your letterhead
FOR FREE BOOKLET
3 Record retention chart tells you how long to keep specific records.
2 Gives complete information for best procedures in record storage.

BANKERS BOX COMPANY
720 S. Dearborn Street • Chicago 5, Ill.



CINCINNATI
you'll like the
NETHERLAND or TERRACE
PLAZA HOTEL

When in Cincinnati, your best bet is the friendly air-conditioned Netherland or Terrace Plaza Hotel. You'll feel "at home" with the perfect service, the most modern accommodations, and excellent food. Unexcelled facilities for business gatherings of all kinds.

John G. Horsman, General Manager
Owned and operated by
Thos. Emery's Sons, Inc., Cincinnati, Ohio

Here are some of the markets where plastics men see room for vast expansion →

plastic is either thermoplastic or thermosetting.

Thermoplastics are materials that undergo only a physical—not a chemical—change during processing. In this respect, they're like ice. They'll liquefy under heat and pressure, solidify again when they cool down. Sometimes they're referred to as reversible plastics. A product made from one of them will melt if it's heated up again to the critical temperature. These plastics are, to a limited extent, salvageable—though not so much so as steel. Included in the group are the celluloses, fluorocarbons, styrenes, acrylics, nylon, vinyls, and polyethylene.

Thermosetting plastics undergo a chemical reaction when they're subjected to heat and pressure. Once formed into a product, they can't be re-melted. They're often called irreversible plastics for that reason. Included in this group are the aminos (urea and melamine), polyesters, and phenolics.

• **Strangers**—It's understandable that this huge and complicated field has had trouble explaining itself to business and to the general public. Each type and sub-type of plastic has its advantages and disadvantages, just like any other engineering material. The big problem, plastics men say, is in teaching fabricators and users just what each type is meant for.

All too often, men in the trade will tell you, the uninitiated user approaches plastics with the notion that they're pure magic. When he finds out that a plastic cup will break if you jump up and down on it, or that a plastic toy will melt, he howls with indignation.

As one engineer puts it, there's no ideal material for any structural job. Whenever you go about choosing a material, you're faced with a compromise. If you want lightness, you may have to sacrifice strength. If you want a hard surface, you may have to accept brittleness along with it. And you have to temper your thinking with considerations of cost, availability of materials, ease of manufacture. There's an individual equation for each product. All this goes for plastics as well as for any other group of materials.

Being new, the plastics industry has had a hard time getting this point across to the people who buy its products. This is one of the industry's biggest problems.

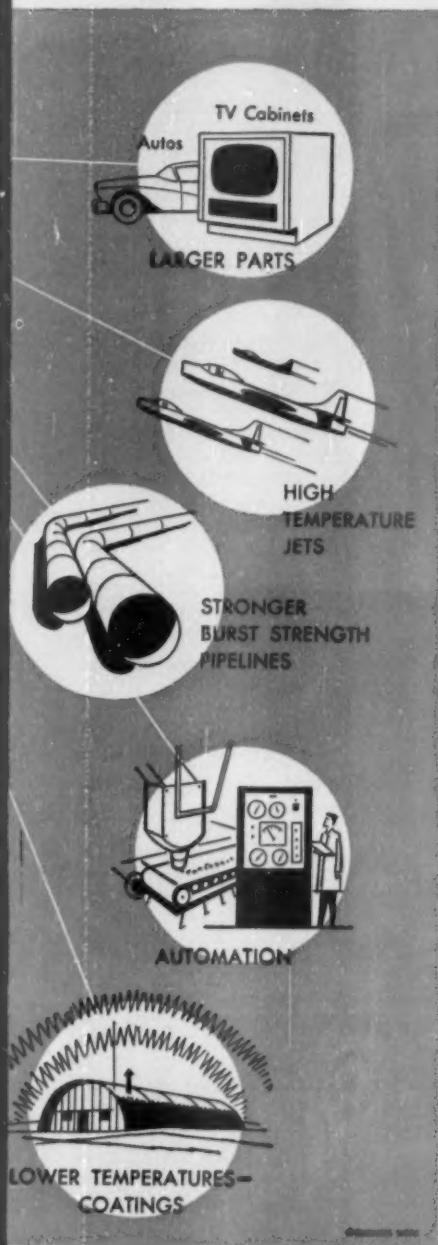
• **Variations**—It would be a big problem even if all plastics of the same



type were of the same grade. But that isn't the case. Within each class of plastic, there's a wide variation of quality from manufacturer to manufacturer. This has made it even harder for the industry to form a profitable partnership with other businesses and with the public.

Take the case of the vinyl raincoat. A well-made vinyl coat is as good a bargain as you could ask for. It's durable, light, waterproof, and relatively inexpensive. But last year, sales of vinyl sheeting fell 20% below the level of 1952.

Why? Largely because not all vinyl raincoats are well-made. Some manu-



vinyl's stigma. Department stores, too, have been doing some policing of vinyl on their own.

• **Debutantes**—These are the problems of the plastic materials. What are the hopes?

Actually, the hopes are more than hopes. The plastics industry is like a small boy viewing a filled stocking on Christmas morning. Without a doubt, there's something in the stocking. The question is—what?

Undoubtedly, today's major plastics will be improved and modified in the years to come. These modifications may well open up whole new worlds for the plastics to conquer. The styrenes in use today, for instance, are a lot different from the ones in use only five years ago. Scientists learned to combine them with synthetic rubber and produce an entirely new range of products.

Undoubtedly, too, today's minor plastics—the newer ones that are just starting to get into big-scale production—will play a big role in the future. The industry is counting heavily on four newcomers in particular:

Polyethylene. This is the waxy plastic widely used in squeeze bottles. There are now only three big producers of polyethylene: Bakelite, du Pont, and—working on a different type—Barrett Div. of Allied Chemical & Dye Corp. But at least six other big companies are getting into the business.

The producers think polyethylene's natural habitat is the field of packaging. It's strong, hence well suited for heavy-duty packaging of such items as potatoes and hardware. It's flexible at low temperatures, and may well give cellophane some competition as a wrapping for frozen foods. The producers think it will make itself increasingly useful, too, in the fields of industrial pipe and electrical insulation. It seems slated to become another 400-million-lb.-a-year plastic before very long.

Polyesters. These are tough, durable plastics. Reinforced with such materials as fibrous glass, they've proved themselves able to take over many jobs that require hardness and structural strength. Among their accomplishments are auto bodies, fishing rods, boats, and bathtubs.

The field of reinforced plastics, so far, is in its infancy. Only 30-million lb. of resin went into the field last year. But it's a highly competitive field, and promises to become even more so. The resin turned out for it last year was supplied by 41 companies.

Polyesters have other possibilities besides that field, however. Du Pont, for instance, makes a polyester fiber called Dacron. The company is also nearing commercial production on a polyester film, called Mylar, for which everybody concerned has pretty high

KOHLER ELECTRIC PLANTS

*Independent Source
of Electricity*



AUTOMATIC STAND-BY when storm or accident cuts off central station electricity

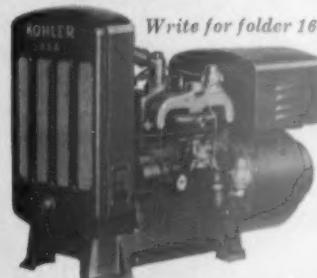
Act before the emergency to insure uninterrupted electric light and power. A single failure of central power can cause losses greater than the cost of protection provided by a Kohler automatic stand-by plant. Models for homes, farms, hatcheries, greenhouses, hospitals, schools, stores, theatres, fire alarms, communication systems, airports.

Portable and Mobile

On-the-job electricity saves time. Models for power saws, planers, drills, sanders, pipe threaders and cutters, hedge and tree trimmers, chain saws, public address systems, excavators, draglines, electro magnets, trailers, concession trucks, fire and repair trucks.

Sole Supply

For ranches, motor courts, oil drilling rigs, pipe lines, lumber camps, tunnels, mines, work boats.



Write for folder 16-P.

Model 5E61, 5KW, 115/230 volt AC. Automatic stand-by. Sizes from 1000 watts to 30 KW.

Kohler Co., Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT
ELECTRIC PLANTS • AIR-COOLED ENGINES
PRECISION CONTROLS



Chrysler Building East, New York City
Reinhard, Hofmeister & Wolquist, architects
Photo: Sigurd Fischer

marble in profusion . . .

at the entrance loggias, the main and lower concourse levels, the stairways, connecting tunnels to the main Chrysler building, all elevator lobbies, floors, toilet partitions . . .

Marble to cut maintenance costs, promote cleanliness, provide beauty, attract business, protect an investment . . .

Marble to realize the true meaning of economy . . . and at a cost that is only a fraction of the savings it will provide . . .

IN FACT, Marble in profusion, from top to bottom of the 32 story Chrysler Building East, cost only 2.7% of the total construction cost.

What other material gives so much value for so little cost?

Literature Available FREE

"Proof that Marble costs less . . ." "Marble Forecast, 1953-1954" "Marble in the Bank"



The fluorocarbons are remarkably costly, they're also just plain remarkable

hopes. Mylar has a terrific tensile strength; it might easily compete with steel strapping in certain tough packaging assignments. It can also be made extremely thin—a fact that could open up big possibilities in the work of insulating miniature electronic parts.

Silicones. These largely inorganic plastics are the ones that send a plastics man's imagination soaring the highest. They got their start as high-temperature lubricants in aircraft. They retain their properties over a tremendous range of temperatures, and their life span is at least 10 times that of organic plastics—many of which begin to deteriorate after a few years.

Their principal use will be to modify the properties of non-plastic materials; it takes only a small amount of a silicone to change another material's behavior startlingly. If you have a big vat of foaming material, for instance, and you want the foaming to subside, just drop in a thimbleful of one of the silicones. The liquid will become as placid as lake water.

Fluorocarbons. These make up the most expensive, and the smallest, of all 14 families of plastics listed on the chart. Though they're remarkably costly, they're also just plain remarkable. A fluorocarbon paint called Teflon, made by du Pont, costs \$75 per gal. When you paint it on something, the resulting surface is so smooth that practically nothing will stick to it. Large bakeries paint cookie cutters with Teflon. The dough, sticky though it is, will no more hang onto the cutters than a marble would hang onto a sloping roof. Similarly, a baking tin painted with Teflon needn't be greased; the cake will slide out with no trouble at all.

Fluorocarbons are also good at resisting corrosion and solvents. They're used in gaskets for pumps, pipe flanges, lids and corks for vessels containing acids and other hungry substances.

II. Markets

Almost all of the new plastics have big possibilities. But it doesn't necessarily follow that they'll have the opportunity to fulfill those possibilities. Having the qualifications for a job, and getting the job, are two different things entirely.

In going after the jobs they want, plastics will have to contend with some hard—and possibly painful—economic facts. Having presented their credentials, they'll find prospective employers quibbling about money.

The typical plastic is a good deal

MILL SCALE REMOVED CHEMICALLY FROM NEW PLANT EQUIPMENT

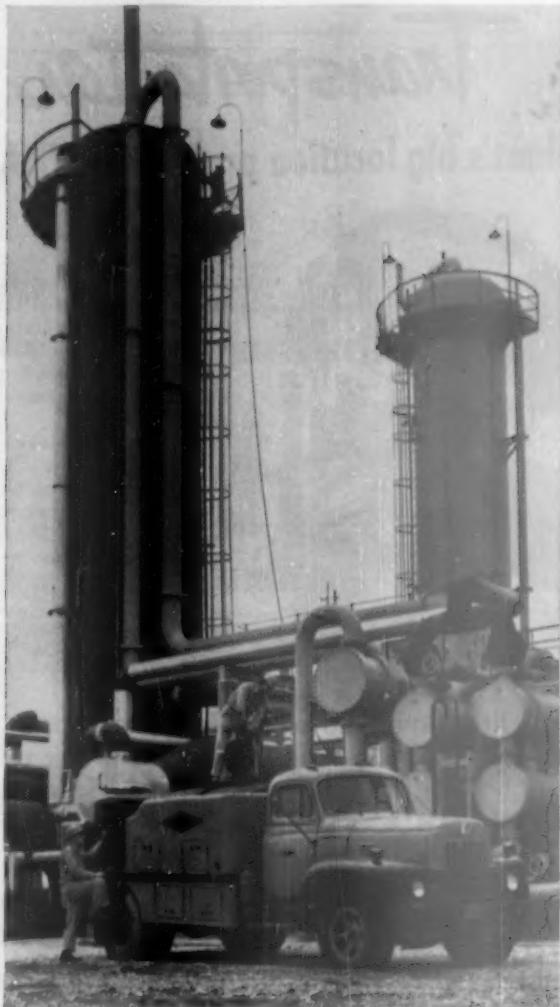
Entire ammonia plant cleaned after erection.

Job done in 4 days, cutting operator's estimated cleaning cost almost 50%.

A new synthetic ammonia plant had just been erected. The operator wanted to remove the mill scale from the entire operating system before the plant was put into production. This would eliminate dangers of product contamination, retarded heat transfer and further corrosion. And once the plant was put into operation, it could stay on stream.

Dowell engineers did the job in just 4 days. They used chemical solvents to remove the mill scale from all equipment in the ammonia, oxygen and lube systems— compressors, after-coolers, intake, discharge, hydraulic and synthesis lines, nitrogen knockouts, synthesis and raschig ring towers, and ammonia bowls. Solvents were applied through regular connections—no dismantling was required.

The operator indicated that Dowell Service saved his company almost 50% over their own estimated cost of removing the scale using mechanical methods.



Dowell engineers apply their wide chemical experience to your problems.

Dowell engineers do the job for you. They bring chemical solvents in truck-mounted tanks right to the job. They furnish all necessary pumping and control equipment. Solvents are applied according to the techniques demanded by the job: filling, spraying, jetting, cascading or vaporizing. These liquid solvents go wherever steam and water flow, reaching surfaces inaccessible to other cleaning methods. No special scaffolding is required. *There is usually no dismantling, and downtime is held to a minimum.*

Perhaps chemical cleaning can help increase the efficiency of equipment in your plant. For complete information and cost estimates, call your nearest of over 130 Dowell offices—no obligation, of course. If you prefer, write directly to DOWELL INCORPORATED, TULSA 1, OKLAHOMA, Department D-10.



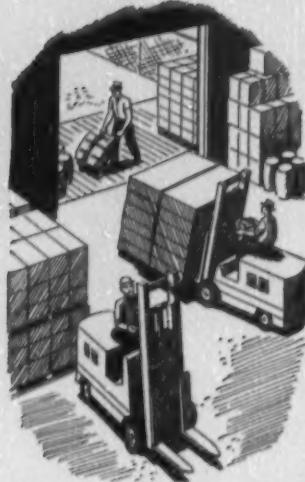
DOWELL SERVICE

chemical cleaning service for industry



A SERVICE SUBSIDIARY OF THE DOW CHEMICAL COMPANY

Transportation was this plant's big location problem...WHAT'S YOURS?



A manufacturer of specialty goods wanted to establish a new factory in the northeast market, close to large L.C.L. shipping terminals. He consulted the Industrial Location Service of the State of New York, and soon had complete data on several sites with proper transportation facilities. He was then able to choose the right location without delay.

You can get complete, confidential information, free, from the Industrial Location Service on these site factors: *Labor, sites, raw materials, transportation, community services, markets, power and fuel, available buildings, and state regulations.*

GET FREE BROCHURE: "Industrial Location Services." Also detailed physical map of N. Y. State. Write New York State Department of Commerce, Room 751, 112 State St., Albany 7, New York.



Industrial Location Service of New York State

"WE DON'T SELL SITES—WE MATCH NEEDS!"

For a Rugged Individualist—

Home Grown Social Security

Here's the answer to your dreams for a thoroughly practical hobby. You have all the pleasures of gardening and living with your favorite flowers—orchids, camellias, African violets, begonias, and other beautiful blooms. You sell the surplus. What an enjoyable way to supplement your income and make your recreation pay for itself. Precision-made materials for a 14 by 8½ ft. Orlyt ready to connect to your walls and home, \$400. 14 by 19 ft.—\$895. Send for Catalog No. 3-4A.



Orlyt ALUMINUM GREENHOUSE

Lord & Burnham • IRVINGTON, N.Y.



14 ft. x 19 ft.
Greenhouse
Pictured: \$895
DES PLAINES, ILL.
St. Catharines, Ont.

Baekeland was looking for a substitute for shellac; he came up with Bakelite

more expensive than the older materials. Even polystyrene and phenol-formaldehyde, the cheapest of the plastics, are several times as expensive on a pound-for-pound basis as steel, rubber, glass, cast iron, or wood. At the high end of the scale, the fluorocarbons sell for about \$10 per lb.

If a plastic wants to replace an old-timer in a certain job, it can succeed only by proving itself so much better suited to the job than its competitor that price becomes secondary. Later, as production moves up, the price of the plastic will probably float down. Vinyls, among the fastest growers, are a case in point. Their price is now half what it was in 1942, while some competing materials have doubled in price.

A second way for a plastic to succeed is to dodge the whole question of competition entirely, and develop its own jobs—jobs that nobody has ever thought of before. Mothballing of ships in plastic cocoons is a good example.

• **Search**—Many of today's familiar plastics started out as substitutes for older materials, grew up into other jobs in which they were much more at home and in which competition was lighter.

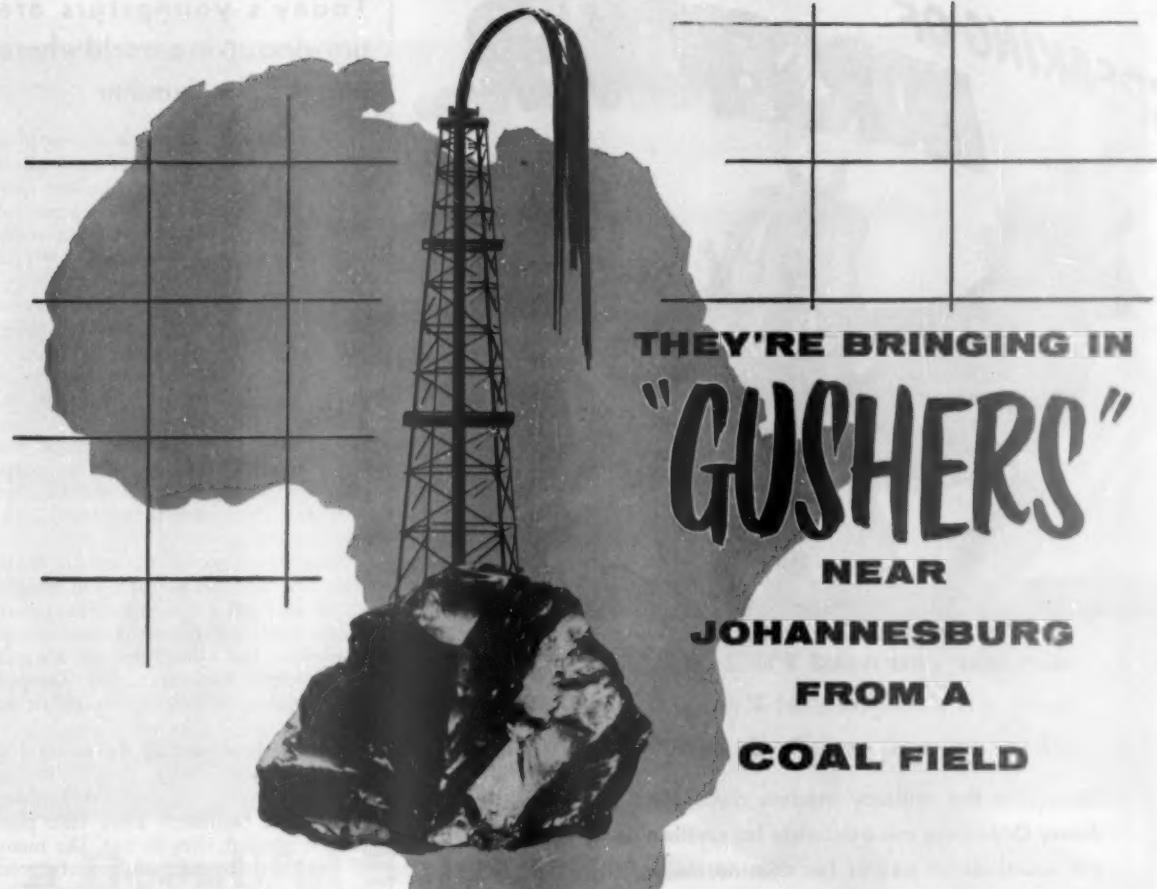
John Hyatt's Celluloid, for instance, was conceived as a substitute for ivory. Later, it found other replacement jobs. Dentists colored it pink and used it as a substitute for hard rubber in dental plates. Finally it began doing jobs that were not strictly replacement work—because no other material had exactly the right qualifications.

The celluloid collar, which could be wiped clean at the end of each day, is an example. No other material then known combined the same qualities: (1) lightness, (2) firmness, (3) durability, (4) color-fastness, (5) wipability, (6) ease of manufacture, and (7) devilish discomfort.

The same kind of story applies to Bakelite. Probably the biggest single step in the development of plastic materials came in 1909 when Dr. Leo Baekeland, looking for a substitute for shellac, discovered how to make a certain resin. Under intense heat, the resin became insoluble; and it couldn't be re-melted. This was the first wholly synthetic plastic. Baekeland called it Bakelite.

Today, Bakelite is almost as familiar as wood. It's used in making handles for electric irons and other appliances, radio and television cabinets, telephone receivers. It's also used extensively in plywood bonding. It has a combination of properties that, in certain uses, put it far ahead of the competition.

• **The Big Push**—Throughout the



THEY'RE BRINGING IN
"GUSHERS"
NEAR
JOHANNESBURG
FROM A
COAL FIELD

South Africa—land of gold and diamonds and uranium . . . of copper, tin and coal—is one of the world's greatest storehouses of mineral wealth.

But nature neglected to provide a twentieth-century reservoir of petroleum in this remote, oil-hungry land. And, since South Africa boasts more automobiles per capita than any country other than the United States, the need for refined petroleum products is large and constant.

South Africa's first vigorous answer to the petroleum shortage will be in operation in a few months. It is the first oil-from-coal plant in Africa, and one of the largest ever built. Located fifty miles south of Johannesburg, this refinery—a project of South African Coal, Oil and Gas Corp., Ltd. (SASOL)—will convert 3,000 tons of coal daily into usable petroleum products.

The size of the SASOL project may be gauged by the size of its boilers. Furnished by Combustion Engineering, Inc., they are the largest ever erected on the African continent, and include all that's latest and best in boiler design. The four C-E Boilers—which supply all the steam needed for power, process and heat in this new plant—have a continuous generating capacity of nearly a million and a half pounds of steam per hour.

Long recognized in America for their outstanding reliability and economy, C-E Steam Generating Units in recent years have been selected for many of the most modern power installations throughout the free world.

So, whatever your steam needs, from small industrial boilers up to the world's largest . . . for heat, power or process . . . for stationary or marine use—there's a C-E Boiler that will meet your requirements exactly.

COMBUSTION ENGINEERING

Combustion Engineering Building, 200 Madison Avenue, New York 16, N.Y.



B-727

BOILERS, FUEL BURNING & RELATED EQUIPMENT; PULVERIZERS, AIR SEPARATORS & FLASH DRYING SYSTEMS; PRESSURE VESSELS; AUTOMATIC WATER HEATERS; SOIL PIPE

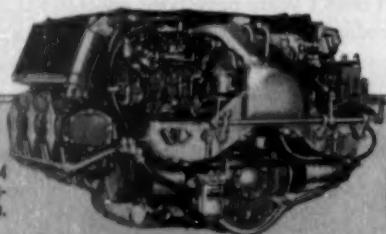
SPEAKING OF HORSEPOWER...



... whether you need TWO or A THOUSAND,
there's a Continental Red SealTM model
Engineered and Built for Your Job

Now that the military models developed jointly with Army Ordnance are available for civilian uses, you can get Continental power for commercial applications at just about every power level from a lawnmower up to a tank. These air-cooled military series, from 375 to more than 1,000 horsepower, have been thoroughly proven under combat conditions. Their high power-weight ratio, ease of maintenance, and stamina for sustained peak loads suggest their special suitability for many jobs in the industrial field . . . Inquiries are invited.

PARTS AND SERVICE COAST TO COAST



Continental A0895-4
Air-Cooled 8-Cylinder
Engine, 375 h.p.

Supercharged version,
designated as A0895-
3, develops 500 h.p.

1819 BROADWAY, NEW YORK 23, NEW YORK • 1252 OAKLEIGH DRIVE, EAST POINT
(ATLANTA) GA. • 6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 3017 S. SANTA FE
AVE., LOS ANGELES 50, CALIF. • 910 S. BOSTON ST., ROOM 1000, TULSA, OKLA.

Continental Motors Corporation
MUSKEGON, MICHIGAN

Today's youngsters are growing up in a world where plastics are familiar

1920s and 1930s, hundreds of new plastics were discovered. Practically all of them got started in applications pioneered by other materials. Some of them had fair success. But the really big substitute push came during World War II.

When metals and wood became scarce, all kinds of plastics leaped obligingly into the mass market. This made the plastics industry's sales charts look pretty, but it did little to help the industry's public relations effort. Many of the plastics that appeared during the war were of inferior quality, or misapplied, or both. As one plastics man puts it: "They were better than nothing—but not much."

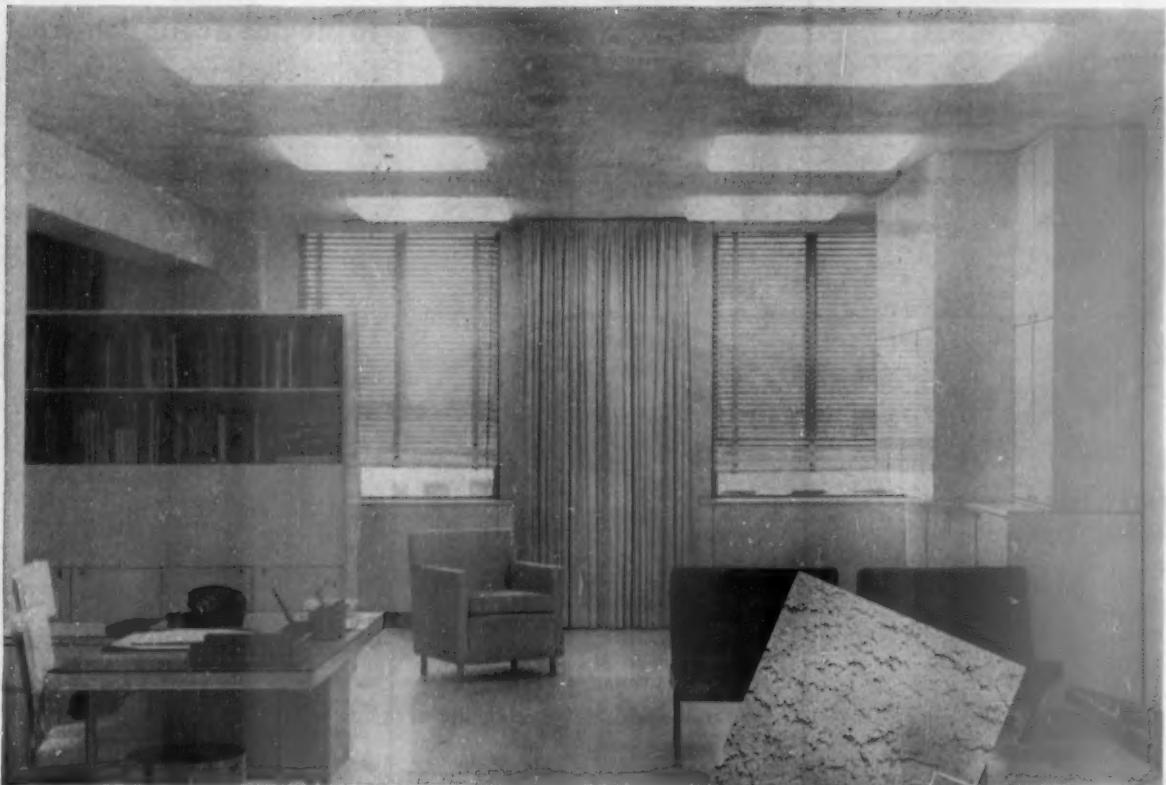
Some resin producers, looking back, wish now that the industry had bought up all this inferior merchandise before it ever reached the five-and-dime stores. The public has a long memory; it won't easily forget the razor that drooped like a willow branch if you put it in hot water.

• **New Generation**—But the industry is making a fresh start. Today's youngsters are growing up in a world where plastics are familiar. They take plastics for granted; they do not, like many of their parents and grandparents, tend to think of plastics as substitutes. The industry pins much of its hope on this new generation.

Take buttons, for instance. The new generation accepts plastic buttons as it accepts green grass. Grass that's anything but green is unusual; so are buttons made of anything but plastic. It's a neat reversal in favor of the plastics industry. If today's youngster sees a wooden button, or a glass one, or a leather one, he thinks of it as a change from plastic. A decade or two ago, it was the other way around.

• **Other Worlds**—The button business isn't large in terms of plastics tonnage. But there are some big-volume fields in which plastics are just as firmly entrenched. Communications, electronics, and air-conditioning are some of the biggest—and these are fast-growing industries. They use plastics largely for electrical and heat insulation. The plastics industry thinks the growth of these industries in future years will pull plastics volume up fast.

There were insulators, such as porcelain enamel, long before Baekeland came up with the first synthetic resin. But it's safe to say the electronics industries couldn't have grown so fast as they have without plastics. All of the modern plastics are good insulators in their original states. Practically all



a Beautiful Solution to Noise-Control Problems . . .

Johns-Manville
Permacoustic

Specify J-M Permacoustic® tile for ceilings that provide unusual architectural beauty with maximum acoustical efficiency and fire safety.

Johns-Manville Permacoustic is exceptionally sound-absorbent, attractive and noncombustible. Its two random-textured surface finishes—textured and fissured—increase its noise-reduction qualities . . . provide design and decorative interest.

Made of baked rock wool fibres, Permacoustic is fireproof—meets all building code fire-safety requirements. Johns-Manville Permacoustic is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic tile. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 199 Bay St., Toronto 1, Ontario.

Fissured (top)

Textured (below)

INFORMATIONAL DATA ON PERMACOUSTIC

Sizes 12" x 12" 12" x 24"	Thickness $\frac{3}{4}$ "*	Color: white
------------------------------	----------------------------	--------------

ACOUSTICAL EFFICIENCY

Test No. AS1-98	Test No. AS1-99
-----------------	-----------------

cycles per second	cemented to plaster board (mounting No. 1)	mechanically mounted on special metal supports (mounting No. 7)
125	.04	.56
250	.21	.53
500	.75	.40
1000	.88	.73
2000	.85	.88
4000	.78	.88

noise reduction coefficient	.65	.70
-----------------------------	-----	-----

weight per sq. ft.	1.3	1.3
--------------------	-----	-----

*Also available in $\frac{5}{8}$ " thickness

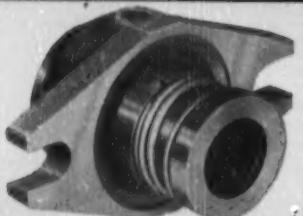


Johns-Manville

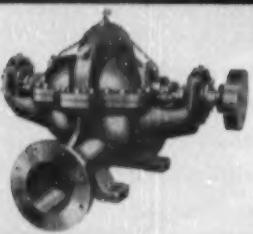
40 years of leadership in acoustical materials

What's NEW in pumps from

THIS MECHANICAL SEAL...



APPLIED TO THIS PUMP...



PRODUCED THIS NEW PUMP



RESULTS: Bearing and shaft wear reduced; space and weight halved

MAIL COUPON FOR COMPLETE INFORMATION

8-page bulletin describes the new Peerless split-case horizontal centrifugal pump illustrated above. Use coupon for your copy.

PEERLESS PUMP DIVISION

Food Machinery and Chemical Corp.

Plants: Indianapolis, Indiana;
Los Angeles, California
Offices: New York; Indianapolis;
Chicago; St. Louis; Atlanta; Dallas;
Plainview and Lubbock, Texas;
Albuquerque; Phoenix; Fresno; Los Angeles.



PEERLESS PUMP DIVISION
Food Machinery and Chemical Corporation
301 West Avenue 26, Los Angeles 31, California
Send Peerless Type AS Centrifugal Pump Bulletin
No. 8-1350

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

Plastics teamed with metal to provide a corrosion-proof lining for the beer can

of them have qualities that the older insulators didn't have. Some are extremely flexible; some take up practically no space.

Another field in which plastics have earned respect is the field of decorative laminates such as Formica (Formica Co.) and Micarta (Westinghouse Electric Corp.). These laminates use the aminos as binders. They offer a combination of properties—strength, hardness, heat resistance, built-in color—that no other material has.

Then there's the field of nylon gears. These are tremendously expensive, but manufacturers have shown themselves willing to ignore the expense in certain cases. The gears are noiseless and long-wearing, and they need no lubrication.

- Alloys—One of the fields that make plastics marketing men happiest is that of plastic alloys. This is the great unexplored territory. As many plastic alloys are possible as metal alloys. No one knows yet what kinds of useful qualities will pop up as alloy experimentation goes on, but plastics marketers are watching the field avidly.

An even bigger market—both now and, probably, in the future—lies in combinations of plastics with other materials. This development started in the 1930s, and has been one of the soundest supports of the industry.

In the 1930s, plastics teamed up with wood to make plywood useful in new kinds of jobs. Today, practically all plywood and wood-waste products are bonded with plastic resins. Also in the 1930s, plastics teamed up with metal to provide a sanitary and corrosion-proof lining for the beer can.

Other combinations followed in an endless procession. Used with paper, plastics form honeycombs sturdy enough to use in structural panels and aircraft wings. With abrasives, they've moved into grinding wheels.

Probably the best-known team is the one that makes up safety glass. A sheet of vinyl butyral resin sandwiched between two sheets of glass offers advantages that neither material could offer alone. Glass defies weather, is hard and transparent; but it shatters easily. The plastic is tough, but it's too soft to use by itself. Put the two together (the resin happens to be a first-class adhesive) and you have a window with all sorts of useful characteristics.

III. Techniques

Until only a few years ago, plastic products were built with machines and

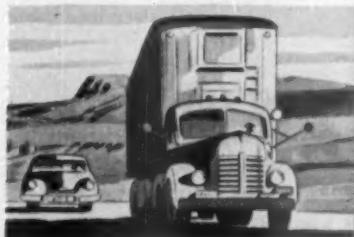
Whoever You Are . . . Whatever Your Business . . . An R/M Product Touches Your Life



FOR THAT NEEDED MARGIN OF SAFETY—R/M BRAKE LININGS!

When you have to stop, and stop *fast*, R/M Brake Linings stop you smoothly, safely. You can depend on Raybestos-Manhattan products under tough traffic conditions; that's why R/M friction materials—brake linings, brake blocks, clutch facings—are standard equipment on millions of new cars, trucks and buses. And that's why you'll find R/M friction parts in all models of automatic transmissions. R/M is the leading producer of stop-and-go products for replacement, too. For safe

brake relines, millions of motorists, repairmen, dealers, truck and bus operators prefer R/M products branded with one of the trademarks shown below. But stop-and-go products are only one example of R/M's specialized skills. Throughout industry and in your home, your life is touched by hundreds of products made in R/M's seven great plants and laboratories. If you have problems involving asbestos, rubber, engineered plastics or sintered metal, call in an R/M representative.



Known the world over for the finest in brake blocks, brake linings, clutch facings, and automatic transmission friction parts, R/M supplies stop-and-go products that assure smooth, safe operation of millions of cars, and giant trucks as well, under rigorous traffic conditions.



Throughout the nation, operators of bus fleets—in cities and cross-country service—specify R/M brake blocks, linings and clutch facings for replacement service. Fleet owners know they can depend on R/M products for safe, continual operation with minimum maintenance.



With more than a half-century of background, R/M is today the world's leading manufacturer of asbestos and sintered metal brake linings, brake blocks, clutch facings, and automatic transmission friction parts. For years, R/M has kept far ahead of every new automotive development.



Fan Belts and
Radiator Hose



Mechanical Packings
and Gaskets



Abrasive and
Diamond Wheels



Conveyor Belts



Industrial
Drive Belts



Rubber Lined and
Covered Equipment



Asbestos Textiles

RAYBESTOS-MANHATTAN, INC.

PASSAIC, NEW JERSEY

Raybestos... Condor • MANHATTAN... Grey-Rock

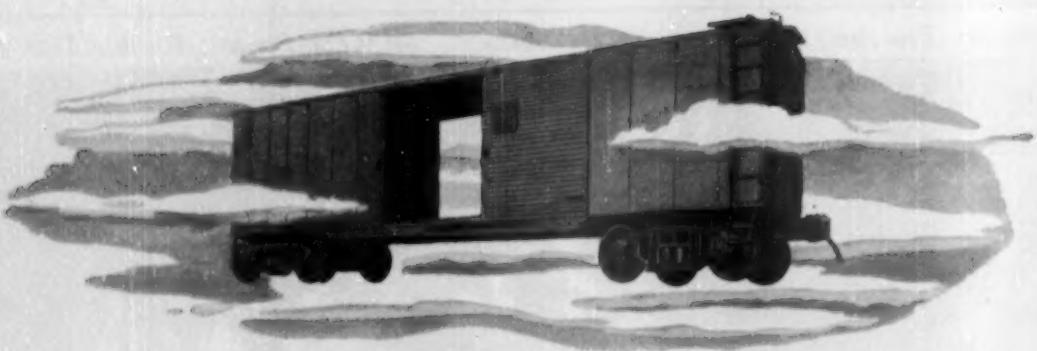
SPECIALISTS IN ASBESTOS, RUBBER, SINTERED METAL, ENGINEERED PLASTICS



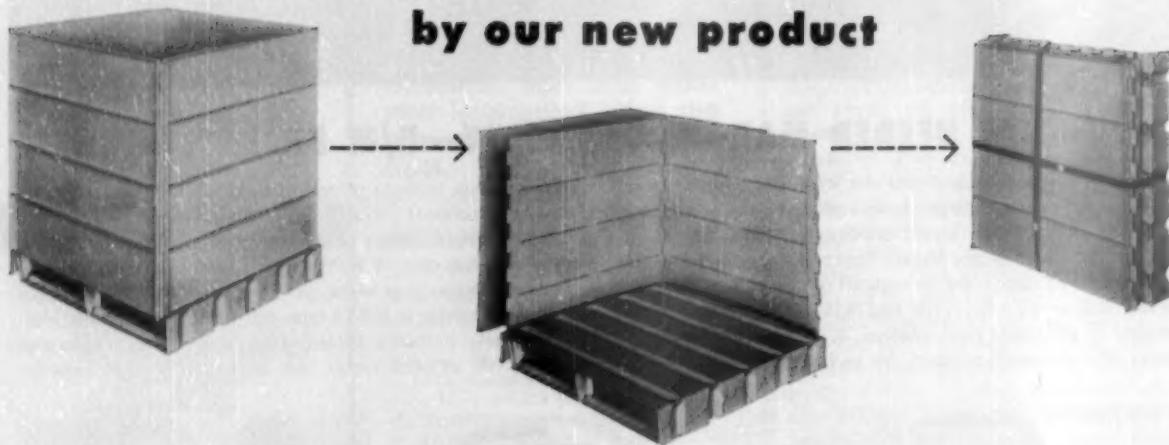
Other R/M Products:
Engineered Plastic and Sintered Metal
Products • Bowling Balls • Hose • Other
Industrial Rubber

Factories:

Passaic, N.J. • Bridgeport, Conn.
Manheim, Pa. • No. Charleston, S.C.
Crawfordsville, Ind. • Neenah, Wis.
Peterborough, Ontario, Canada



YOUR COST OF SHIPPING EMPTY SPACE
reduced



Have your traffic manager figure your cost of returning space in empty containers. Then compare with the savings possible from using our new

COLLAPS-A-TAINER

The Collaps-a-tainer is a steel box that folds flat. When you return it, you can ship four collapsed in the space of one open. The standard size is 30" x 30" x 30". It weighs approximately 100 pounds and can be stacked (assembled or collapsed), to any practical height.

ANOTHER POINT FOR YOU

While your traffic manager is writing us about freight classifications, consider the Collaps-a-tainer from management's point of view.

It's an example of how Republic Steel never lets up on anything in the continuous task of improving. Even so simple, so old a thing as a box can be improved, if you think about it long enough.

This goes for our steels, too. Every method of improving the quality of steels is constantly under research, put into practice as soon as possible.

REPUBLIC STEEL
GENERAL OFFICES • CLEVELAND 1, OHIO

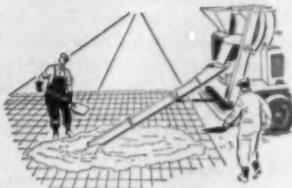


WORLD'S WIDEST RANGE
OF STANDARD STEELS
AND STEEL PRODUCTS

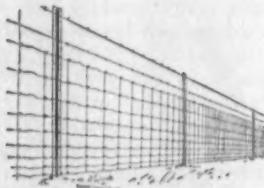


Thousands of steels and steel products now bear the Republic name.

Do you know these?



CONCRETE REINFORCING RODS AND WELDED WIRE FABRIC for road construction are made by Republic's Truscon Division. This is a staple in the construction business and Republic is a big supplier.



WOVEN WIRE FENCE AND STEEL POSTS are among the many steel items Republic makes for the farm market. Republic operates a research farm where it can test steels under actual farm conditions.



PIG IRON—all grades of pig iron are produced by Republic. Iron from the famous Chateaugay mine in New York is unique and is the exclusive property of Republic Steel. It is being used in secret military applications.

* * *

Republic Steel Today:

ore mines here and abroad; lake and ocean-going ships; coal mines; furnaces and huge steel mills, North and South; steel fabricating plants across the nation and in Canada; sales offices in principal cities; PLUS 70,000 men and women working together to produce steels and steel products to help build and protect a stronger America.

On short production runs, plastics are more economical than metals

techniques borrowed from the metalworking and woodworking trades. Now, the industry is fast developing its own machines and techniques. Plastics men reason that they're dealing with a different kind of material. It's a material that can, and probably should, be handled in special ways to take advantage of its own peculiar qualities.

Accordingly, the plastics men have worked out production methods like these:

Injection molding: An automatic machine melts the plastic, squirts it into a mold at high pressure. When the plastic re-solidifies, the machine ejects it from the mold.

Vacuum forming: A sheet of thermoplastic is clamped over a mold and heated. Then air is drawn out from between the mold and the plastic. The plastic settles against the contours of the mold much as a wet shirt would settle against your arms and shoulders.

Spray webbing: A fast-setting plastic is sprayed over a framework. The plastic forms a web across the openings in the framework, gradually builds up to a solid covering.

Foaming in place: This technique is used to fill hollow spaces in structural parts, to provide insulation, and to provide lightweight bulk in such items as life preservers. Resins and chemicals are poured into a mold or into a cavity to be filled; they foam up much like soapsuds in a washing machine. Eventually the material sets into a solid mass of tiny cells.

• Size and Speed—All these new techniques have their own specific problems. And all of them share two common problems—perhaps the most worrisome of all. The two problems involve (1) size and (2) speed.

The nature of thermoplastic molding materials has put a limit on the size of any single plastic piece. Right now, the limit is 50 lb. to 75 lb. in weight, around 7 sq. ft. in total face area. Engineers are studying stresses and strains to find out how to form bigger pieces. Until they succeed, this limitation will retard plastics in many fields.

Then there's the problem of production speed. It's largely a chemical problem. With metals, you're usually just changing the shape of a piece of material. This can often be done in one blow. With plastics, you generally have to start with powder or granules, change the material to a liquid, and then change the liquid back to a solid. It all takes time.

A 1-in. plastic pipe can be extruded at the rate of about 300 ft. per hour. A

carbon steel pipe of the same size is made at a speed of 36,000 ft. per hour.

A steel automobile top is stamped out in 12 seconds. Even when you add the time needed for the finishing steps, you've still made the auto top faster than you can make any plastic product except a button.

• Reinforcing—But plastics also have some advantages to offer production engineers. On short production runs, plastics have the edge over metals in many uses.

Take the case of Chevrolet's Corvette sports car, which has a body of reinforced plastic. Subcontractors turned out 300 plastic bodies for Chevrolet last year. If the companies had made the bodies of steel, they would have had to invest heavily in steel fabricating equipment. You need the same expensive heavy presses whether you're stamping out 10 cars or 100,000. But by making the bodies of reinforced plastic, the companies were able to get by with a relatively small capital investment.

A plastic car means higher labor and materials costs. The advantage of a small capital investment would be nullified if Chevrolet planned to turn Corvettes out in the same volume as standard cars. Experts figure the point at which steel and plastics costs draw even is roughly 15,000 units.

The plastics industry's technicians are working hard to raise that point higher. The way to do it, many of them think, is to develop reinforced plastics that can be stamped to shape like sheet steel.

• Shell Molding—Plastics men have not only developed production techniques of their own; they've helped develop techniques for other industries as well. Shell molding, for instance—a technique used by the metals industries—may bring plastics men a good deal of fame and fortune.

Shell molding is a metal casting method. Conventional casting involves a big box of hard-packed sand, into which is pressed the mold shape. It's fairly clumsy, requires a lot of sand, and is hard to mechanize. In shell molding, the sandbox is replaced by a thin, shell-like mold made of roughly 90% sand and 10% phenolic resin, baked rigid in an oven. Not only is the shell mold easier to handle; but its surface, made smooth by the plastic, allows for much more precise and delicate casting.

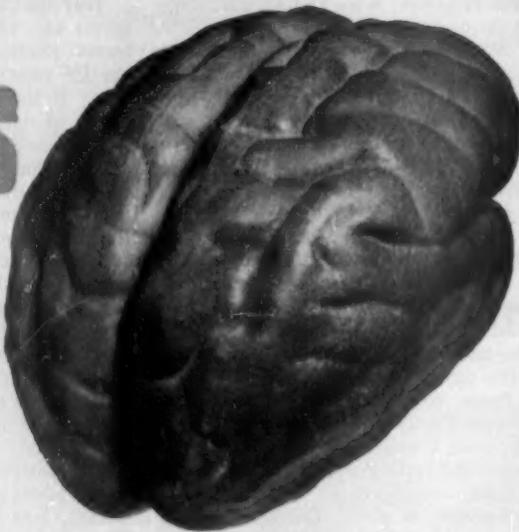
The trouble is that it can cost a company hundreds of thousands of dollars to switch from conventional casting methods to shell molding. The plastics industry will be working hard to outsell that drawback during the next few years.

• New Concepts—That's an example of the way plastics, by their very nature, can contribute to new production techniques. Many men in the industry

this

is no good
without

this



Recently, **B&SF** announced the Type "C" Spherical Roller Bearing—a design improvement which provides, size for size, up to 50% more capacity, 2 to 3½ times longer life, than any other available design.

BUT—exceptional as this design is, you have to use it properly to realize its full potential.

That's where **B&SF** customers get an essential extra—the advice of engineering brains which for over 45 years have been applied to nothing but anti-friction bearings—the best ways to design them, the best ways to manufacture them, the best ways to control their quality.

And, above all, the right ways to use them.

As an **B&SF** customer, you are entitled—at no extra cost—to the assistance of **B&SF**'s unmatched field engineering service...

men who average 14 years of on-the-job anti-friction experience!

Why, then, settle for less? Why not specify **B&SF** and get the extra—the world's widest experience in putting the right bearing in the right place?

7000

B&F INDUSTRIES, INC., PHILADELPHIA 32, PA.
—manufacturers of **B&F** and **HESS-BRIGHT®** bearings.

© 1954 — **B&F** Industries, Inc.

DESIGNED AND
PRODUCED FOR

Satisfaction



Fabricators often began as two-man shops in basements, alleys, garages

foresee the day when the nature of plastics will foster a brood of entirely new design concepts.

This has already started to happen, to a limited extent. One designer has used the spray webbing technique to produce a chair. He built a metal frame, webbed it in, and then coated it solid with plastic. Several manufacturers are making lampshades the same way. And there are even designs for a beach cottage in which the walls, roof, and all other surfaces are built up with a plastic spray over a lattice-work skeleton.

IV. The Industry

Roughly 50 big companies produce the bulk of the plastics used in the U.S. There are perhaps 100 smaller companies that deal primarily in scrap and specialized products. Then, the industry society estimates, there are at least 5,000 companies in the business of fabricating plastic products.

There's a huge gap between the 50 big producers and the 5,000 fabricators. The producers, by and large, were already big companies before they began concentrating heavily on plastics. Many of them began life as chemical companies. Others were rubber companies. Still others were electrical companies that got interested in plastics as insulators. They almost all got into the plastics business with much cash and much technical skill to draw on.

The fabricators, on the other hand, often started as one- or two-man shops in basements and garages. Many plunged into the business during the war, when plastics offered opportunities for a quick dollar.

Shortly after the war, these alley shops found to their dismay that the plastics business was rapidly getting more technical. It was no longer a question of buying a few hundred dollars' worth of equipment, laying in some resin, and going to work. Now, the equipment was more costly; the resins were chemically more complicated. Many of the alley shops quietly closed their doors and were never heard of again. Others managed to hang on, but were never able to graduate from the garage class.

• **Need for Mergers**—The future of the plastics industry will probably depend very heavily on what happens to these small fabricators. Every advance of plastics technology will make their lives harder.

At an SPI meeting not long ago, Hiram McCann, editor of Modern Plastics Magazine, pointed out that the

For your letterheads . . .



Remember this famous trade-mark whenever you order stationery or business forms. For every requirement, there's a Mead Paper made especially to meet the need. There's Mead Bond, which is made expressly for those who demand the best in quality and appearance in paper for letterheads. There's Mead Mimeo Bond, Mead Duplicator, Mead Ledger, and Mead Opaque. Each carries the genuine Mead water-mark. Each performs flawlessly.

Your printer or lithographer—backed by leading paper merchants everywhere—knows and recommends

Mead's full line of business papers. Join the growing parade of those who specify Mead Papers for every job.

We realize that Mead Bond is its own best recommendation. There's no coupon to this advertisement. But there is an offer. If you'd like to have a sample packet of Mead Bond, just request it on your letterhead. When you see it, you will understand why we say Mead Bond is the paper which reflects the character of successful enterprise.



THE MEAD CORPORATION "Paper Makers to America"

Sales Offices: The Mead Sales Co., 118 W. First St., Dayton 2 • New York, Chicago, Boston, Philadelphia, Atlanta

Whatever the job...

electrical
buses



or
passenger
buses



PERMACEL[®] TAPES

Find out how you can use self-sticking tape . . . write Permcel Tape Corporation, New Brunswick, N.J.

The best way for the small shops to get cash is to team up with big companies

industry is slowly moving to meet this need. One after another, big companies are buying small ones. Minnesota Mining & Mfg. Co. has bought Irvington Varnish & Insulator Co. Owens-Illinois Glass Co. has bought a half interest in Plax Corp. (squeeze bottles). Continental Can Co. has bought part of Shellmar Products Corp. (plastic films). Republic Steel Corp. has bought Owings-Sharpe, Inc. (plastic pipe).

• **Decentralizing**—Another trend, and one that industry observers consider equally healthy, is a movement on the part of big suppliers to decentralize their operations. Behind this move is the fact that few of the industry's raw materials ship well over long distances. The shelf life of the average uncured plastic is so short that it's vital for suppliers to be as close to customers as possible.

• **Oil Companies**—This decentralization should sit well with the customers—the plastics fabricators. So, too, should a developing move into the field by oil companies. It will mean that many more suppliers.

The big resin producers now get many of their raw materials from oil producers. In a sense, therefore, the resin producers are intermediaries rather than basic raw materials suppliers.

The oil companies haven't overlooked this. In the last few years, many of them—particularly the small and medium-sized ones—have been edging toward production of petrochemical end products. Now, Shell Oil Co. and Phillips Petroleum Co. are leaders in moving one step further—into actual production of plastics. As plastics volume goes up, it's likely that more and more oil companies will hear the call.

REPRINTS AVAILABLE

Single copies of this Report to Executives will be available in about four weeks to **BUSINESS WEEK** subscribers upon request without charge. Other copies will be billed at the following rates: 1 to 10 copies, 20¢ each; 11-100 copies, 16¢; 101-1,000 copies, 12¢; over 1,000, 10¢. Address orders for reprints to Readers Service Dept., **Business Week**, 330 West 42nd Street, New York 36.

Pump-don't stop

INDUSTRIAL LIQUIDS



You can build an effective barrier against fires and accidents, reduce maintenance costs and make a general improvement in housekeeping if you pump liquids from drums instead of pouring, drawing, siphoning or spigoting. If you use Tokheim pumps you may also be rewarded with lower insurance rates.

The wisdom of pumping seems obvious, doesn't it? And so desirable you'd think every factory would have such equipment. But the number of modern plants that still employ antiquated methods of liquid transfer is surprising.

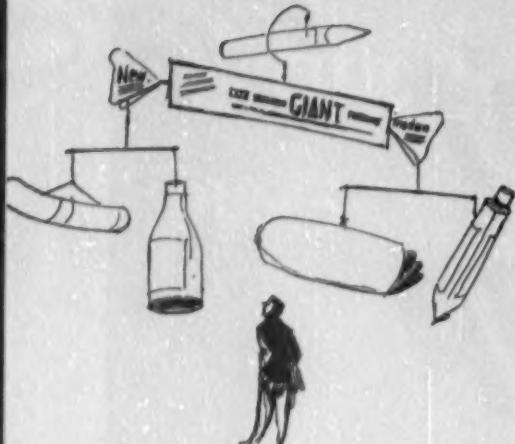
These little Tokheim pumps are a valuable asset to any factory. They assure safe handling of liquids in small quantities—reduce spilling, slopping, over-filling, dripping, and practically eliminate slippery floors. Pump 20 gallons a minute. Available with hose or spout and optional parts for special liquids. Decide now to put Tokheims to work for you. See your dealer, your Tokheim representative, or write the factory.



General Products Division
TOKHEIM CORPORATION

Designers and Builders of Superior Equipment
1846 Wabash Ave. Since 1901 Fort Wayne 1, Ind.
Factory Branch: 1309 Howard St., San Francisco 3, California
Canadian Distributor: H. Reeder, 205 Yonge St., Toronto, Ont.

Gasoline Pumps and Accessories • Air and Liquid Dispensers • Specially Engineered Products



Giant clowns
fiddle a
tune



Roving eyes...

The cigar store Indian has gone to his rest, but his shade keeps bobbing up as more and more retailers set up bigger and better ...



Point-of-Purchase Displays: The

In all the temples of consumer merchandising, no space is so sacred as what marketing men call "the last three feet." That's the spot, right in front of the retail counter, where the consumer digs into his purse—or doesn't. It's the last ditch where competitors battle for the consumer dollar.

Last week in New York's Statler Hotel, the Point of Purchase Advertising Institute gave the spectator an almost terrifying notion how hot that last-stand battle is. Over 100 POPAI members—makers of point-of-purchase display ads—put on the biggest exhibit the association has ever had (pictures). In the tightly packed corridors, lights winked; dioramic scenes gleamed and faded; unbreakable dishes rattled in

rotating tubs; clowns fiddled soundless tunes; hands moved; posters, signs, placards flashed colorful messages. The aim of all this: to make the consumer buy just this product, right this minute.

• **Does It Work?**—Such an assault on the senses raises a question: Does all this movement, color, noise, fantasy make the cash register ring? Or will the consumer feel, as one marketing expert feels on the subject of point-of-purchase displays, "I'm bored"?

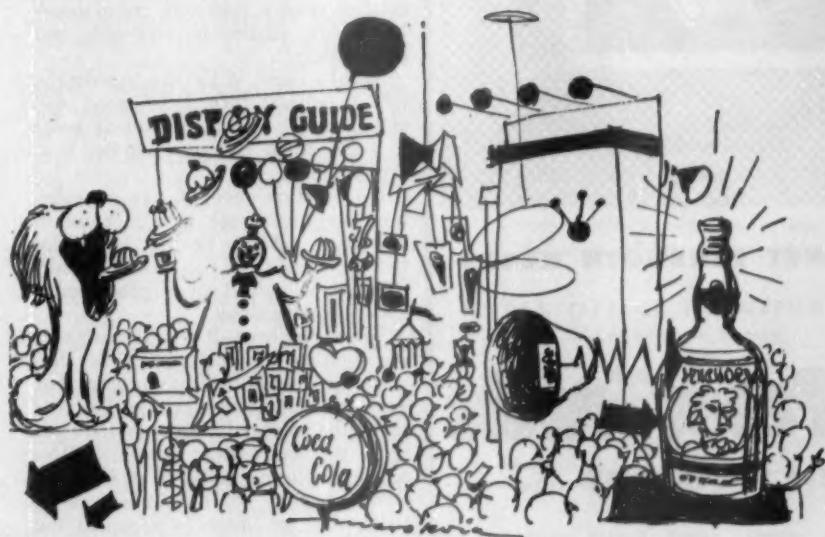
In an unguarded moment, one POPAI manufacturer cheerfully granted the second possibility. "Sure, we'll kill each other off in 10 years," he said. "But we'll make a lot of money first."

Yet it's doubtful that even he believed his statement. POPAI members

—and its 170 members include advertisers and ad agencies as well as display makers—are convinced that point-of-purchase is just coming into its own.

To back this view, they cite these figures. Estimates of the amount that will be spent on point-of-purchase promotion in 1954 reach \$750-million, against \$400-million to \$500-million in 1953.

Some of this growth comes from the use of costlier displays—more lights, more animation. As just one clue to the trend to animated displays, Haft & Sons, of Brooklyn, offers its own figures. Its sales of animators have quintupled in the past four years. Part of this, Haft feels, is the result of television. Mobile displays look good on TV; the same display at point-of-sales



Final Assault on the Customer

gives the promotion greater impact.

- **Progress**—Again, more outlets are riding the point-of-purchase hay wagon. Point-of-purchase selling, of course, is an old dodge. The barber's pole, the cigar store Indian, the hawker's cry are ancient forms of on-the-spot merchandising. Alice, deep in her rabbit hole, succumbed to the point-of-purchase spell when she obeyed the command on the little bottle, Drink me.

Wonderland has come a long way since Alice's day. Liquor stores, drugstores, appliances, food, men's wear, movie houses are favorite stamping grounds of point-of-purchase. Today gasoline stations, car dealers, even department stores are lining up as point-of-purchase display customers.

The display industry stakes its faith in the future on two grounds: the proliferation of merchandise, and the growth of self-service. More merchandise means more sales pressure. Fewer sales clerks means that the pressure will have to take an impersonal form.

- **Concrete Proof**—Manufacturers share POPAI's confidence. According to a survey just published in Printers' Ink, companies where brand selling counts are putting more money into point-of-purchase material than ever before.

Some 13.6% of their total advertising budget is going into this medium. Most of this money comes out of the manufacturer's own pocket. Printers' Ink reports that two out of three manufacturers pay for the display material—

at prices that may range from 10¢ for a small piece of cardboard to \$20 or more for the complex displays. The really big spectacular displays can run as high as \$1,500.

- **Two Jobs**—As the consumer goods producer sees it, point-of-purchase can do two big jobs for him. It can serve as a sort of institutional promotion, to remind the consumer of his brand name. Better yet, it can actively create sales of a particular product.

The diversity of materials that goes into these displays is little short of stupendous. POPAI made a count of them, came up with some 60 different varieties. Among those used to promote the brand name, it included such items as metal signs, electric and neon

"... if the displays don't help the retailer, they wind up in the basement . . ."

DISPLAYS starts on p. 122

light signs, paper and cardboard posters, to mention just a few. Display racks and bins, animated devices, lights, mobiles rank high among the promotional devices.

One of the major developments of the past few years has been the spread of advertising mobiles, which are used to promote everything from bread to refrigerators (BW—Feb. 28 '53, p. 46). But this is overshadowed now by the use of motion (pictures, page 122).

• **Captive Audience**—The manufacturer finds in such promotional displays a quick way to help put over a new product, to stimulate impulse buying, to get the equivalent of magazine circulation—and a relatively cheap one—by making customers, willy-nilly, see his products.

What's more, if his displays do the job of selling, they build good will among his dealers—an important point in a day when the good retailer is at a premium.

No question about it, the manufacturers are increasingly sold on point-of-purchase. The crucial question, though, is this: Is the retailer equally sold? If he isn't, a lot of good money goes down the drain.

• **Space Problems**—It's right here that the question mark begins to show. Retailers at the POPAI symposium last week—and elsewhere—were enthusiastic about the potential. But they took pot shots at some current practices. The retailer has some problems of his own; if the displays don't help him solve them, they are apt to wind up in the basement.

Probably his biggest headache is what Wilda Coleman, vice-president of Mick-or-Mack Stores, at last week's symposium called "the terrifying problem of space." He can't afford to give up this precious commodity unless the returns at the cash register warrant it. "We have to be very selective," says Wilda Coleman—and the greater the pressure from the manufacturer, the more selective the retailer has to be.

Grand Union Co. sums up the feeling of many retailers when it says bluntly that a great deal of money is going into point-of-purchase advertising and a lot of it is spent unwisely. Another regional food chain echoes this emphatically. It's using more and more material—but it's using less and less of the material that the manufacturer supplies.

The displays are too big, some say. Retailers don't always know ahead of

OUR TOWELS CAN
TAKE IT . . .



BECAUSE CONTROLLED WET STRENGTH KEEPS

pure white

Fort Howard Paper Towels

STRONG AND FIRM WHEN WET!

A paper towel that falls apart when wet means you'll need two or more for a satisfactory drying job . . . and that means uneconomical cost-in-use to you!

But Controlled Wet Strength keeps Fort Howard Plyfold towels strong and firm when wet, without sacrificing softness or absorbency . . . so one Fort Howard Plyfold lasts longer, dries better! And that's in addition to Stabilized Absorbency for effective drying power regardless of towel age, and Acid Free Paper for kindness to skin.

There's a Fort Howard Folded Towel in a grade or fold to fill your present cabinet equipment with superior towel performance at genuinely economical cost . . . so call your Fort Howard distributor salesman today!

For 35 Years Manufacturers of Quality
Towels, Toilet Tissue and Paper Napkins



FORT HOWARD PAPER COMPANY
Green Bay, Wisconsin

time when a big national advertising campaign is coming along to tie in with. Some of the displays are so complicated the store clerks can't figure out how to set them up. Sometimes in the more complex ones the works break down. "I have three pieces in my store window now," said George Miller of Ridgewood (N. J.) Liquor & Wine Store, "and they aren't working." A food retailer remarks, "I don't want my store to look like every other store in the country; I want to keep it distinctive."

• **Distorting the Picture**—Marketing consultant Victor Lebow points out that the manufacturer is in danger of getting a distorted picture in his enthusiasm for his own particular point-of-purchase project. It may boost sales of his own wares—but does it really bring plus business to the retailer or merely switch a consumer from one brand to another? Point-of-purchase has its place, he warns, but it is only as good as the backing it gets from other forms of selling.

The evidence is abundant that more and more advertisers are aware of the problems. All admit that the waste of display money worries them. More and more they are taking their projects to their distributors, their salesmen, even to the retailer, to get their thinking. The retailer, especially, is beginning to get his due.

Thus, a current General Foods promotion suggests Minute Rice (a General Foods product) and tuna (not a General Foods product) as a good Lenten dish. This gives the retailer a chance to boost not only Minute Rice sales but any brand of tuna he likes, including his own private brand. Krueger Brewing Co. tells of going to the retailer, finding out that he liked to sell beer in quart bottles because that brought the most profit. So Krueger designed a display for quarts.

• **Counterweight**—Given such consideration, retailers respond handsomely. They will spend out of their own pockets \$65 for an Esquire sox display rack—or even \$500 for a Minute Maid freezer—because it brings him dollars-and-cents returns. Even in the tight and ordered layout of a modern supermarket, he'll take a display that works.

It would seem, among all these pressures, that the consumer doesn't stand a chance to resist. The housewife does have a chance, though, warns Dr. Ernest Dichter, psychologist and advertising consultant, if her needs, too, aren't considered. The dilemma of today's housewife, says Dichter, is "the misery of choice." Confronted with an overdose of on-the-spot selling, her dilemma will be tougher still—and the whole doctrine of point-of-purchase will be lost. Give her a point-of-purchase promotion that helps her make up her mind, he says, and the battle is won.

Your office is People

You profit or lose by
their work attitudes

Let's face it . . . your office staff is a sensitive group. Their reaction to their surroundings and equipment shows in their work.

And, when overcrowded offices or outdated furniture hamper their efficiency—you pay the bill!

Costly errors in correspondence, in filing, in careless handling of orders have been eliminated in many businesses by standardizing on Steelcase. They find this complete family of desks, chairs, files and service units increases work output up to 35%, provides up to 25% more usable floor space. The result is always the same . . . happier, more productive, more efficient office teams.

Ask your Steelcase dealer to tell you the details. He's listed under "Office Equipment" in the Yellow Pages of your phone book.

METAL OFFICE FURNITURE CO.
Grand Rapids • Michigan

Free Office Guide

The colorful FREE booklet "Tooling Up Your Office" is crammed with new modern office planning ideas. For your copy, simply attach your letterhead, mail to Dept. A.



STEELCASE
BUSINESS EQUIPMENT



Flashlight case molded is water-resistant, dent



THREE PARTS of Du Pont "Alathon" make up new flashlight case. Each part is formed in one simple operation by economical injection molding. (Flashlight manufactured by Gits Molding Corp., Chicago, Illinois).



ALATHON® polyethylene resin is readily processed by molders and extruders of plastic materials. It has good chemical resistance and excellent dielectric properties. Its toughness and flexibility over a wide range of temperatures and freedom from odor, taste, and toxicity make it ideal for packaging. A cutaway of a jar for packaging cosmetics is shown.



DU PONT NYLON is the most versatile plastic material for mechanical applications. Parts made of it are lightweight but unusually strong and resilient... have excellent bearing characteristics, often require no lubrication. They can be mass-produced by injection molding or extrusion. A typical part is this air conditioning intake grille for automobiles.



TEFLON® tetrafluoroethylene resin has no peer among plastics for severe service. Very few chemicals attack it. It has been used where temperatures reach 500°F. Its outstanding dielectric properties make it ideal for electronic applications. "Teflon" is formed by special molding processes or extrusion. Shown above are typical gaskets made of "Teflon."



LUCITE® acrylic resin is used to make products that are both functional and decorative. The most beautiful of all plastic materials—it can be clear and transparent and produced in color. Products of "Lucite" are shatter-resistant, have good dimensional stability and possess excellent resistance to weathering. Automobile instrument panel lenses are shown.

of DU PONT "ALATHON" -proof and unbreakable



Outstanding properties of Du Pont plastic engineering material improve product performance . . . add sales appeal

Flashlight case manufacturers face difficult problems. To be fully serviceable, a case must be light in weight yet strong. It must be attractive in appearance and "warm" to the touch. It must resist moisture and corrosive chemicals . . . have good dielectric properties. And, of course, it must be capable of mass production at low cost.

One manufacturer met *all* these requirements—and added new sales appeal to his product—by specifying a flashlight case molded of Du Pont "Alathon" polyethylene resin. "Alathon," for example, is strong, yet extremely light in weight, and can be processed in a variety of colors. The toughness and resiliency of this unique engineering material enable the case to withstand heavy blows without denting or breaking. Problems of damage from water and corrosion are eliminated with "Alathon," since the material is moisture-resistant and inert to most chemicals. And, because the three basic parts making up the flashlight case are produced by economical injection molding, complicated sub-assembly steps are eliminated . . . production costs are low!

HAVE YOU AND YOUR COMPANY INVESTIGATED THE PROPERTIES of DuPont "Alathon" polyethylene resin and the other members of the Du Pont family of plastic engineering materials—"Lucite" acrylic resin, "Teflon" tetrafluoroethylene resin and Du Pont nylon? The application described above and the others shown on these pages are typical of the product improvements made possible when design and service requirements are evaluated in terms of these unique engineering materials. For further information on the properties and uses of these materials, use the coupon below or write to E. I. du Pont de Nemours & Co. (Inc.), Polymers Department, Room 334A Du Pont Building., Wilmington 98, Delaware.



REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

*Trademark of E. I. du Pont de Nemours & Co. (Inc.)

E. I. du Pont de Nemours & Co. (Inc.), Polymers Department
Room 334A, Du Pont Building., Wilmington 98, Delaware.

Please send me more information on the Du Pont plastic engineering materials checked: Du Pont nylon; "Alathon" polyethylene resin; "Teflon" tetrafluoroethylene resin; "Lucite" acrylic resin. I am interested in evaluating these materials for:

Name _____

Position _____

Firm Name _____

Street Address _____

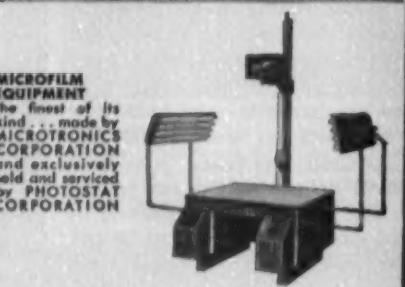
City _____

State _____

Type of Business _____

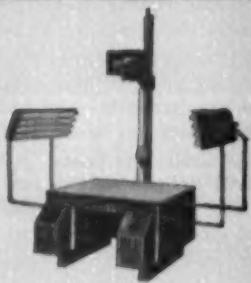


CONTINUOUS MODEL
designed and perfected for large quantity production at lowest possible cost



PHOTOSTAT INSTANT COPIER
the revolutionary new small machine for office copying, everywhere

MICROFILM EQUIPMENT
the finest of its kind . . . made by MICROTROPHICS CORPORATION and exclusively sold and serviced by PHOTOSTAT CORPORATION



For over 40 years, PHOTOSTAT CORPORATION has manufactured, sold and serviced the finest of photographic copying equipment and supplies. They have been continuing years of successful service to American business and the varied requirements of Federal, State, County and Municipal governments, coast to coast.

Today . . . more than ever before . . . PHOTOSTAT CORPORATION stands ready to serve you with photographic copying apparatus and material of the very highest quality. From the small Instant Copier to the large, completely automatic continuous models, you can be properly equipped to handle your particular needs most efficiently and economically with the same permanent, errorless copies . . . erasure-proof, waterproof, and fraud-proof . . . that set the standard of good photographic copying the world over.

PHOTOSTAT is
the registered
trade-mark of
PHOTOSTAT
CORPORATION

WRITE US FOR FURTHER INFORMATION
PHOTOSTAT CORPORATION
295 STATE STREET, ROCHESTER 14, NEW YORK
Service offices in most principal cities and in Canada

You can
always rely on

PHOTOSTAT

(REG. U. S. PAT. OFF.)

*the most
valued name in
the photographic
copying field*



STANDARD MODEL
the model which has long set the standard for photo-copying

PHOTOSTAT
copying requirements of specific industries

Giveaways . . .

. . . are legal, says Supreme Court, overruling FCC's contention that such shows are lotteries.

The Federal Communications Commission may not like them, but giveaway shows on radio and television are here to stay. They're perfectly legal, said the Supreme Court this week.

This ended FCC's celebrated case against the giveaways, which began nearly four years ago (BW—Aug. 27 '49, p31). Any giveaway show that employs telephone calls to viewers or listeners is a lottery, ruled FCC. It said that it would refuse to license stations that aired such shows when their licenses came up for renewal, as they do every three years.

This brought broadcasters to their feet fighting. Three networks—American Broadcasting Co., Columbia Broadcasting System, and National Broadcasting Co.—carried the case to the Supreme Court.

The court failed to find that giveaways are lotteries, because the element of a "consideration" is missing. Said the court: "The participation of a home audience by merely listening does not constitute the necessary consideration."

• **Unanimous**—The Supreme Court decision was unanimous (Justice Douglas took no part in the decision). In delivering the decision, Chief Justice Warren pointed out that FCC tried several ways of getting rid of the giveaways, first by seeking to get the Justice Dept. to take criminal action, then by urging Congress to amend the law specifically to prohibit the shows, finally by attempting to accomplish the same end through agency regulation. He said:

"The commission has overstepped the boundaries of interpretation and hence has exceeded its rule-making power. Regardless of the doubts held by the commission and others as to the social value of the programs here under consideration, such administrative expansion does not provide the remedy."

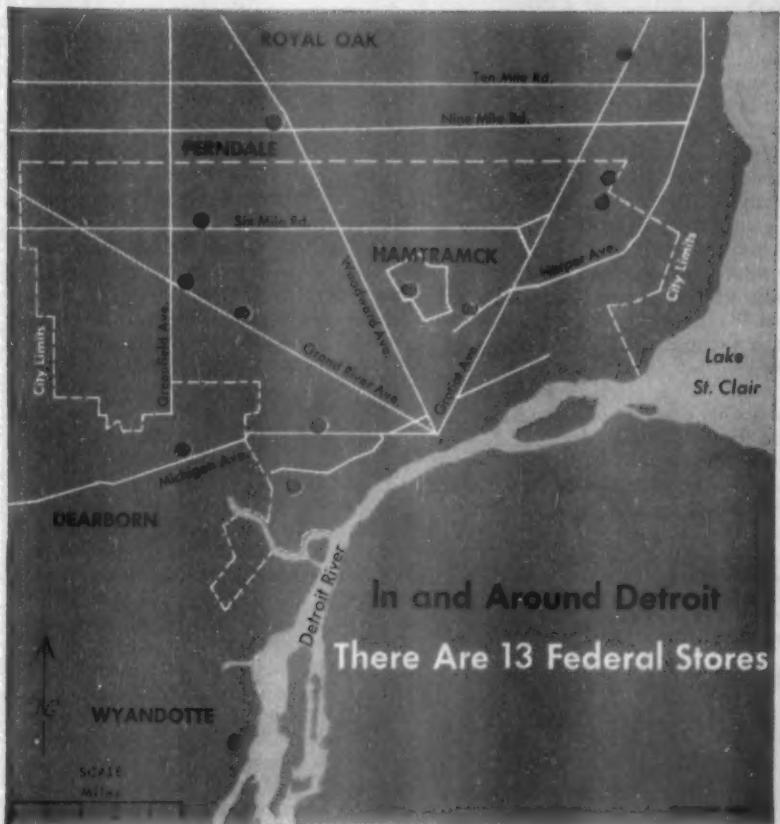
• **Consequences**—Early this week the industry still wanted time to study the 12-page decision before making any official comments.

Actually, there probably won't be much effect from the decision so far as giveaway shows go. Some observers think there may be an increase in such shows on radio, which will grab at almost any straw in fighting TV. The issue has largely become academic since FCC issued its blast and revised its rules.



JOSEPH H. DAVIDSON, vice-president, explains the policy of Federal Department Stores: Having moved into an empty area . . .

You Simply Wait for the Population



Just a few miles outside the Detroit city limits, and roughly a mile north of Ten Mile Road, Federal Department Stores has just opened a 40-store shopping center called Eastgate (upper right, map). Eastgate is dominated by a Federal store—13th store opened by the company in the city and suburbs of Detroit.

Few people outside Detroit heard about the center's debut. It opened quietly. Any noise it did make was drowned out by the fanfare from 15 miles to the west, where J. L. Hudson Co.—another Detroit department store company—proudly unveiled one of the biggest shopping centers in the world. Hudson's Northland has 80 stores and a million square feet of selling space; and more than 100,000 people a day came to look at it during its three pre-view days.

Northland was J. L. Hudson's first venture into the suburbs. The quiet opening of Eastgate obscured the fact that Federal has pioneered decentralized merchandising in the vicinity of Detroit.

- **Method**—Federal has always put its new stores on the edge of growing residential areas and then watched the population grow behind them. When mapped, the Federal store locations show better than a population count how and in what direction Detroit has



Dynamic Niagara Frontier leads 37 states in power consumption!

Only eleven states in the Union used more electrical energy in 1952 than Buffalo and the Western New York area adjacent to it.

At one end of this thriving area, Buffalo, "Queen City of the Lakes," is the world's largest flour milling, second American railroad center; at the other, Niagara Falls, mighty electrochemical and metallurgical center! Sixth largest producer of steel in the U.S. and a leader in aircraft and automotive manufacture, the Niagara Frontier lists 64 different types of industry within its confines.

With all this activity, bustling industry in the Niagara Frontier alone gobbled up 6½ billion kilowatt-hours of electricity in 1953—a rise of 1½ billion in five short years!

To keep pace with these growing demands, Niagara Mohawk Power Corporation has built seven steam, 84 hydroelectric generating stations. Among these is the Huntley Station, near Buffalo, one of the world's largest, with a capacity of 785,000 kw.

Over \$100,000,000 has gone into this expansion on the Frontier since World War II. Rome Cable has supplied miles of wire and cable for these different projects. As many power companies have discovered, Rome Cable exercises rigid quality control and advanced engineering in the use of insulation and sheathing materials, backed by thorough research and long field experience.

Your company also can depend on and profit by using Rome Cable products. For all of the reasons, write for "The Story of Rome Cable."

Rome Thermoplastic Insulated Control Cable—Rölene (polyethylene) insulation and Rome Synthinal (polyvinyl chloride) sheath offer distinct advantages for electrical utility station control circuits.



ROME CABLE
Corporation
HOME NEW YORK
TORRANCE CALIFORNIA

grown since Israel Davidson—Federal's president—opened his first store in the suburb of Hamtramck in 1929.

Federal Department Stores, in dollar volume and number of employees, is less than half the size of J. L. Hudson—whose 1953 estimated volume of \$154-million was neck and neck with the Herald Square store of R. H. Macy in New York. But in Detroit retailing, Federal's growth packs more influence than its current volume. Federal has no downtown outlet, but its stores ring Detroit. Twenty years ago, its annual volume was \$1.2-million. In 1943, sales were \$20-million. For the fiscal year ended last July 31, Federal's sales were \$61.2-million. This year, the figure is expected to top \$70-million.

All told, Federal has 18 stores—13 of them in and around Detroit; one in Muskegon, Mich.; one in Pontiac, Mich.; and three in Cleveland. (Federal's parent organization, Davidson Bros., Inc., also operates a downtown Detroit women's specialty shop—Goodwin's.)

• **Policy**—Federal claims to pull more dollars out of a square foot of selling space than most department stores. In Eastgate, it's trying to do even better.

This is a one-floor department store: 106,000 sq. ft. of space, with one bay stretching off to a distance of more than 300 ft. "The first floor is the best business floor in any store," says Joseph H. Davidson (picture, page 129), vice-president and general manager. "The departments on the first floor always do good business. So we thought we'd put them all on the first floor."

Federal's merchandising policy is as simple as its store layouts: Sell only what the average family needs, at prices it can afford to pay. Federal sells clothing, furniture, appliances, and all softgoods. It does not sell men's suits or overcoats; they take too much space, and Israel Davidson is convinced that a department store can't compete with a men's specialty shop.

• **Prices**—Federal's price structure roughly parallels that of Sears, J. C. Penny, Montgomery Ward, and Hudson's basement store. (It's the toughest competitor of the last-named.) By cutting out the frills, Federal chops pennies off many items.

Federal prefers the cash-and-carry trade. Still, it does have 100,000 active charge accounts; and it finances installment purchases through a wholly owned subsidiary, which sells most of the paper to banks. Federal takes no phone or mail orders, and delivers only furniture and large appliances.

From a new, 550,000-sq.-ft. warehouse and administration building in Highland Park (a city entirely surrounded by Detroit), Federal feeds all 18 of its stores. That building is the receiving point for merchandise for all 18 stores. Goods pass through the

Are you losing money on truck tires that only work part time?

(They're no bargain . . . even at a discount!)

No truck operator would dream of hiring an incapable, undependable driver simply because he would work for less.

If he couldn't handle a truck on the difficult jobs—on steep hills, in wet or muddy going . . . if he couldn't deliver a full day's run for your money . . . well, would you hire such a driver, at any salary?

Strangely enough, some truckmen who'd laugh at this idea will spend important money for undependable "part-time" tires—simply because they sell at a discount.

Such a tire may cost less. But—when it fails you on the tough jobs, causes excessive road delays, quits before it's given you a full run for your money—you could hardly call it a bargain.

That's why Kelly-Springfield suggests that you not only ask, "How much?" but ask all these questions and get all the answers before you buy.

"Are these tires right for my kind of trucking?"

Consider the loads, roads, speeds and distances your trucks must travel. Then make sure the tires you buy are built for the job.

Remember that no discount of any size ever pulled a truck out of the mud. The real bargain is the tire built with extra strength where you need it

most—the tire with no "weak links" to cause premature failure.

That's why Kelly *job designs* its truck tires—builds each tire to specific on-the-job trucking requirements. The result is consistently better performance at far lower long-run cost.

"How much mileage can I expect?"

For many years now Kelly has been promising truckmen "extra thousands of safe miles" . . . and then *delivering!*

Look over this check-list of proved extra-mileage features and you'll see why Kelly can deliver this same extra mileage for you!

- **ARMORUBBER TREAD**—a new, finer carbon black more thoroughly blended with rubber produces a denser, tougher compound that actually outwears steel!
- **"EXTRA RECAP" BODY** of newly perfected, pre-stretched, stabilized cord greatly increases body strength and resistance to impact injury.
- **NEW COOLER-RUNNING** cushion compounds reduce heat build-up and tire fatigue, add still more recap mileage.
- **NEW ROAD CONTOUR TREAD** design puts more working rubber on the road, improves traction and road control, increases safety and mileage.

"Fine claim, but—can you prove it?"

Kelly's claim of "extra thousands of safe miles" is supported by hundreds of actual case histories reported by truck operators themselves. These eye-opening records show that Kelly's really do deliver lower cost-per-mile on every kind of trucking job.

Here is the best possible evidence of tire value. That's why it's important for you to keep your own records. Compare brand for brand, job for job. You'll see why Kelly welcomes this kind of test.

"Who makes these tires—and who'll service them?"

If the answer is "Kelly," you have no further worry. Kelly's reputation for quality is unsurpassed in the industry. Kelly has been a leader in fine tire-making for 60 years!

What's more, the service of your Kelly Dealer can literally multiply tire mileage for you.

He knows tires. He'll see that they are checked frequently for dangerous or uneven wear and often remove the causes. He can recommend the best inflation, rotation procedures, truck capacities and the best tires for you.

On any count, he's a good man to see. Why not let him tell you today about the tires that "work full time" to give you full value!



There's a tough Kelly for every trucking job!

THE KELLY-SPRINGFIELD TIRE COMPANY, CUMBERLAND, MARYLAND



Photographed underwater at Miami Beach by Recia Films

Package Designer makes Patapar underwater test

It isn't necessary to move your drawing-board underwater to discover what designers of food packages have known for years — that Patapar Vegetable Parchment has amazingly high WET-STRENGTH. You can soak Patapar for hours and hours — you can even boil it — but Patapar still stays strong.

Patapar resists grease too

Patapar resists the penetration of fats, oils and grease just as effectively as it stands up in water. These qualities make it ideal as a food wrapper and for many other uses. And — Patapar is NON-TOXIC.

Some of Patapar's many uses

Patapar is produced in different types of variations that meet all sorts of

exacting requirements. Some of its diversified uses; wrappers for butter, poultry, margarine, ham, bacon, milk can gaskets; rubber and plastic releasing separators; white print translucent masters for direct print machines; dialyzing membranes; in hospitals for wrapping articles to be sterilized in live steam. It is furnished in rolls or sheets, plain or beautifully printed with colorful designs.

In your business perhaps there is a job that could be done better with Patapar. Tell us about it, and we will send information and testing samples of the type of Patapar we recommend. Write today.

PATERSON PARCHMENT
PAPER COMPANY
Bristol, Pennsylvania
West Coast Plant:
340 Bryant Street, San Francisco 7
Sales Offices: New York, Chicago

Patapar
Vegetable Parchment
HI-WET-STRENGTH • GREASE-RESISTING

HEADQUARTERS FOR VEGETABLE PARCHMENT SINCE 1885

warehouse in a near-continuous stream. No Federal store keeps much more than one day's stock; generally what you see on the shelves is the stock. That scheme works because the central warehouse is, at the most, only overnight trucking distance away from any store it serves.

- Teletype—The central warehouse plan is effective because of another factor: leased teletype wires. The administration offices have a receiver for each store and one for the buying office in New York, and two transmitters to serve the chain through a switchboard. A mark-down or clearance order can be transmitted to all stores in a matter of minutes.

The teletype system gives Federal extra flexibility. A Federal merchandising manager (there are seven) can order a sale as soon as the stores open in the morning, to take advantage of some particular situation.

- Single Aim—Federal home deliveries are made not by Federal, but by a cartage company under contract. Similarly, Federal does no maintenance work (even in its own warehouse) and contracts out the service on appliances it sells.

"We are in the retailing business," says Joe Davidson. "Not the delivery business, the real estate business, or the construction business."

- Pattern—Federal has little trouble leasing the real estate it needs. It has a history of popping a store into a sparsely settled area, then watching a shopping center grow around it.

Eastgate and its sister center in Cleveland, Westgate, are the only pre-planned shopping centers in which Federal has participated. (It plans two more in Lansing and Flint, Mich.) Yet none of the other stores in the Detroit area is lonely. Today, every one is in the middle of a teeming business center.

- Early Days—None of this was foreseen in the original plans of Federal's founders. Israel Davidson and his brothers, Louis and Saul (the latter now dead), started out as drygoods wholesalers. As Israel Davidson remembers: "You sold goods on credit; then you had to go out and collect. I'd chase here and there. Then I opened this store in Hamtramck, near the Dodge plant, and I sold clothing to the workers. In one day I'd take in \$20,000. I thought: What am I doing, running around to collect money when I can put my goods out on the shelves and take in \$20,000?"

That was in 1929. Except for Sears' store, Davidson's was the first suburban department store in the Detroit area. In those days there was nothing much north of Grand Boulevard (which today is far downtown to many Detroit residents) except the Dodge workers'

houses and the city of Highland Park. In the 1930s, the Davidsons dropped the wholesale business because their department store was competing with their wholesale customers. Davidson Brothers, Inc., operator of Federal Department Stores, was formed in 1934 and today is listed on the American Stock Exchange and Detroit Stock Exchange. The Davidson family owns 59% of the stock.

The Davidsons acknowledge that Federal has grown in the shadow of the automobile industry. Not only did the workers in that industry—Detroit's largest employer—account for the bulk of Federal's transactions in 1953; the peripheral store concept has been made a reality by the families' increasing ability to move around—a mobility gained through the automobile.

• **Instinct**—There are no rules or standards for locating a suburban store, says Joe Davidson. You make traffic and population studies—then you let your retailing instincts have the final word.

This policy of moving into the periphery of cities is not unique with Federal. The same idea has been carried forward successfully by two Chicago chains—Goldblatt Bros. and Wiedboldt Stores (BW-Feb. 11 '50, p40)—and by the big mail-order companies, Sears and Montgomery Ward.

The founder never intended to start a chain. But last week, talking about Eastgate's shiny, efficient Federal, Israel Davidson shook his head and said: "It's not the last word." Federal will be the nucleus of another regional shopping center, southwest of Detroit, within two years. Several more locations around Detroit are being examined.

• **Future**—It's not certain that Federal's future is bound to pre-planned shopping centers, despite the example of Eastgate, Westgate, Flint, and Lansing. Joe Davidson has some misgivings about huge shopping centers. They are still too new, he feels, for anyone to gauge their ultimate role as merchandising machines. And he wonders, as developers plan ever-larger shopping centers, whether they run the risk of creating a whole new set of "downtown" areas.

The Federal chain is starting to repeat its Detroit pattern in Cleveland. It has three stores there now. It opened the first in 1950 and the latest—in the Westgate shopping center—last week. There are more stores for Cleveland in the discussion stage. Stores will open in Flint and Lansing next year.

How far and in what direction will Federal continue to expand? In answering, Joe Davidson lays open the core of Federal's operation: "We won't expand beyond overnight trucking distance."

Warehouses Out

J. C. Penney drops a St. Louis center on grounds that it doesn't pay to do your own warehousing today.

J. C. Penney Co. has decided that it doesn't pay any more to do your own warehousing. Thanks to changes in distribution, it is cheaper nowadays to get manufacturers to ship directly to your stores.

This is the news that came out of St. Louis last week when the big soft-goods chain announced that on July 1 it would close its 13-story distribution center in that city. The center employs some 500 people and mainly handles shoes.

The St. Louis closing follows a similar action last July, when Penney wound up its warehousing operation in New York City. This employed 800 people and handled dresses and coats for the chain.

• **Reasoning**—There were reports that the real reason for the St. Louis closing was demands made by the AFL Teamsters' warehouse union, which had asked for an annual guaranteed wage contract. Penney denies this, though it does admit that one reason for the closing is the increasing cost of the warehousing operation.

But the main reason, a company spokesman said, is that "changes in the distribution business today make a lot of warehousing operations unnecessary."

One big factor is that stores can get goods much faster than they used to. On one hand, many manufacturers have built a network of branch plants, so stores are no longer very far from their sources. On the other hand, the speedup in transportation via trucks and planes has meant that they can get orders through faster than ever.

Another big factor is the change in the way stores do business. Style obsolescence has become more and more important, particularly in wearing apparel. Store managers like to keep up with consumer taste, so they prefer to order more often and in smaller lots.

• **New Setup**—Since it closed its New York warehouses, Penney handles dresses this way: Buyers scour the markets, send pictures of new models to the stores, which sometimes specify the fabric they want. The central buyers then collect the orders and tell the manufacturers where to ship.

There will be one exception to the new Penney system. The chain says it has no plans for getting rid of a third warehouse in Statesville, N. C., which handles the goods of a lot of small mills in that area.

TAILOR MADE SLINGS... SPECIFICALLY FOR YOU!

There are no "problem" lifts to the sling specialist at your Broderick & Bascom distributor. He can meet your specific needs with a standard Yellow Strand Braided Safety Sling or with a Yellow Strand Sling designed expressly for your special work!

With factory - engineering aid, your B & B sling man can custom-tailor a Yellow Strand Sling to fit your requirements to a "T". You'll profit from the exceptional flexibility, the handling ease, the extra margin of safety, the long life of Yellow Strand Slings.

Call on your Broderick & Bascom distributor for an answer to your lifting problems or write direct!

Specify

Yellow Strand

For Savings... Safety... Speedi-Service



BRODERICK &
BASCOM ROPE CO.

4203 Union Blvd.
St. Louis 15, Missouri



Motor Repair Shop Foreman Finds KLIXON Protectors A Big Advantage

SO. NORWALK, CONN.: Vincent Golia, shop foreman of the Electric Motor Repair Shop, knows from experience how KLIXON Inherent Overheat Protectors prevent motor burnouts.

"We have seen so many cases where a seized bearing or starting switch failure would have caused a motor burnout but was prevented by Klixon motor protector that we feel they are definitely a big advantage."

The KLIXON Protector, illustrated, is built into the motor by the motor manufacturer. In such equipment as refrigerators, oil burners, washing machines, etc., they keep motors working by preventing burnouts. If you would like increased customer preference, reduced service calls and minimized repairs and replacements, it will pay you well to ask for equipment with KLIXON Protectors.

Manual reset

KLIXON

SPENCER THERMOSTAT
Div. of Metals & Controls Corp.
2604 FOREST STREET
ASTLEBORG, MASS.

Here's how INVINCIBLE BUSINESS ENGINEERING cuts your FILING COSTS

Cuts costs per filing inch. Drawers open to full length—hold more—make filing easier. Compressor takes up minimum drawer space, pulls up tight, locks and releases at a finger touch.

Cuts filing clerk fatigue. Free floating drawer suspension, exclusive ball-bearing guide rollers and other features take the hard work out of filing, step up efficiency.

Cuts replacement costs. Rigid welded construction, frictionless drawers minimize effects of hard day-to-day use. Cabinets built better...to last longer.



Choose 2, 3, 4 or 5 drawer cabinets for all sizes of letters, documents and cards.



INVINCIBLE
INVINCIBLE METAL FURNITURE COMPANY
Milwaukee, Wisconsin

New Nash Car Doing Fine

Dealers sell nearly 3,000 Metropolitans in first two days... American Medical Assn. blasts Kent ads... Out-of-state merchants don't have to collect sales taxes.

Nash Motors is over the first hump in the merchandising campaign for its new small car, the Metropolitan—it has created a demand. Nash claims the initial dealer stocks of nearly 3,000 were sold out the day after introduction of the small car and that orders exceeded supply by 34%.

A check among Nash dealers in Detroit—where the low-priced field is dominated by Ford and Chevrolet—backed up the factory's statement. One dealer said he was even having trouble keeping his demonstration and floor models.

• **Production Boosted**—Nash had hoped to have 3,000 cars to spread among its 1,500 dealers before announcing the Metropolitan on Mar. 18. It didn't have quite that number because in the voyage from England, where the car is made (BW-Mar. 20 '54, p30), small items such as gas tank caps and keys were mislaid for some of the cars. Even the full 3,000 wouldn't have been many, considering the number of Nash dealers.

Nash promptly ordered Austin Motors, British fabricators of the Metropolitan, to raise the monthly production rate by 60% to reassure dealers about deliveries. Detroit dealers are telling their customers they'll have to wait 10 days to two weeks for delivery, although the dealers are afraid it will be longer because of the shipping time.

• **Crowd-Stopper**—These dealers are frankly amazed at the Metropolitan's reception—particularly, as one said, "considering the high price" (\$1,445 delivered at port of entry). He added: "I guess they have to charge that much if they're going to bring it all the way from England." One man opened his dealership for the first time the day the small car was announced. He sent 700 invitations and 800 people came. He complains the traffic has never stopped and he has trouble getting people out of the showroom to close at midnight.

A jeweler in Ann Arbor, casting about for a way to coax people into his shop, asked the local Nash dealer to lend him a Metropolitan as a crowdstopper. He put it in the middle of his store, where it could be seen from the street. It pulled people into the jewelry store, all right, and the Nash dealer had to trot over a salesman to write up two orders.

H. C. Doss, Nash vice-president, sales, says there has been no specific pattern to the interest in the small car.

He expected good reception in congested metropolitan areas, but he's getting the same response in smaller towns.

Tax Boundary

If a customer from, say Maryland, drops into a store in, say Delaware, and makes an on-the-spot purchase, the Delaware retailer can't be forced to collect the Maryland sales tax on the article purchased.

That is the gist of a 5-to-4 decision handed down by the U.S. Supreme Court this week. In effect, the court said that a seller can be held responsible only for the collection of sales or use taxes on purchases made in the state or states where the seller is located.

• **No Tax Collector**—The decision covered a situation involving Miller Bros. of Wilmington, Del. The state of Maryland had attempted to collect \$356.40 in taxes from Miller for furniture sold to Maryland residents. The state had attached a Miller delivery truck against the alleged taxes due. The court said that Miller couldn't be forced to act as a Maryland tax collector.

The court said that to force Miller to collect and pay the tax would be a violation of the due-process 14th Amendment. The four-judge dissent argued that Maryland had a right to such redress, because citizens who bought out of the state to avoid the tax were still getting the benefits of state services.

It might have been a different story if Miller had been charged with not collecting taxes on mail or phone orders, or if the case had involved an out-of-state store that had a branch in Maryland.

Scalpels Out for Kent

P. Lorillard Co. drew blasts from the American Medical Assn. last week for using results of AMA lab studies to plug Kent "micronite" filter-tip cigarettes in newspaper ads.

The ads cited tests made by AMA last summer, which—AMA chemists concede—showed one type of filter to be more effective than others in removing tars and nicotine. Kent ads claimed exclusive use of this type. However, AMA says that other factors are

involved, such as the amounts of tars and nicotine in each individual brand, lengths of the cigarette and filter.

• "Hucksterism"—The association, in a special press release and editorial in its Journal, "strongly condemned" implication that it approved or endorsed any particular brand of cigarettes—calling this "a most reprehensible instance of hucksterism."

Lorillard is making no statement. This week, Chairman H. A. Kent announced that "contrary to rumors" in the trade, the price of Kents will not be reduced, because "micronite" filters are the "most effective" and "most expensive to make."

MARKETING BRIEFS

Price of color TV is still stiff but shows signs of softening. Westinghouse, which has sold only 30 sets since introducing them last month, is dropping its suggested retail price on 12½-in. screen models from \$1,295 to \$1,110. GE is coming out with a 15-in. set for \$1,000 plus \$25 installation charge.

General Electric is being sued for \$21-million triple damages by Save Electric Corp., Toledo light bulb manufacturer, and three subsidiaries. The antitrust suit is based on a recent New Jersey district court ruling that GE had monopolized the incandescent electric light industry through illegal use of patents and licensing agreements (BW—Oct. 10 '53, p 34). Save Electric charges that GE hindered marketing of green-white, infrared, and insect-repellent yellow lamps, and then pushed its own versions.

Equipment rentals—a growing business in machine tools (BW—Mar. 6 '54, p 100)—is expanding into other lines. Universal Winding Co. has announced a "pay as you profit" five-year lease plan on textile machinery.

Sears and Stop Shop have teamed up to hit the Boston retail frozen food market with two-in-one cooperative ads. Double-page spreads in local newspapers plug Sears's freezer unit giveaway contest and frozen foods sold at S&S to boost sales of both. A similar scheme has been tried in Cincinnati.

Hosiery industry is "sick"—"suffering from overproduction and senseless price competition"—according to Gotham Hosiery Co., Inc., president Roy Tilles. Of 700 hosiery mills operating the beginning of last year, Tilles said, about 150 have been closed down or sold. Gotham will lose about \$77,000 in first quarter 1954, equaling its loss for the same period last year.



Let us show you a site where the atmosphere's right!

You select a plant site with two objectives in mind—profitable production and continuing growth. You know it pays to steer the course which offers the smoothest sailing. B&O's Industrial Development men will help you chart such a course—in confidence, and without obligation.

In the 13-state B&O territory resources are tremendous; power plentiful, rail transportation fast and dependable. Your specific needs studied in the light of these and other factors by men skilled in plant location can uncover a site exactly right for you.

Join the "fleet" of industrial enterprises we have successfully piloted to good sites. Ask our man!

Telephone our plant-location men at:

New York 4	Digby	4-1600
Baltimore 1	LEXington	9-0400
Pittsburgh 22	Court	1-6220
Cincinnati 2	DUnbar	2900
Chicago 7	WAbash	2-2211



Baltimore & Ohio Railroad

Constantly doing things—better!

BUSINESS ABROAD



← Britain's Chancellor Butler gave business a disappointment this week.

- The head of the Exchequer unveiled a "carry-on" budget that provides none of the major tax cuts that businessmen had expected.
- Pointing to the economic gains of the past year, he argues that Britain can increase investment with . . .

No Tax Help for British Business

British businessmen were surprised, disappointed, and a bit angry this week when Chancellor of the Exchequer Richard A. Butler presented Parliament with its 1954-1955 budget. Advance word among Londoners hinted that Butler would bring down a "businessman's budget," the first since the 1930s—to stimulate investment in the private sector of British industry and to strengthen Britain's position in world markets.

Instead, Britons got a standpat budget, balanced and conservative. "This is a moment," said Butler, "when neither tax increases nor tax remissions are possible or called for."

The only crumb for the businessman was a new investment allowance, which gives a slightly higher tax-free depreciation write-off for new plants. There was a cut in estate duties on industrial property needed to carry on the business of deceased persons. And there was a penny and a half cut on admission taxes—for the movies, theaters, and sporting events.

• **Do-It-Yourself**—Admittedly, this is small potatoes. Butler made no bones about his belief that business is strong enough to get along without special budget incentives. He could point out, too, that British business is just this year getting the benefits of some tax relief—lifting of the excess profits levy and the reduction of corporation income taxes—granted in the 1953-1954 budget. Moreover, Butler promised that if

the U.S. recession should deepen later this year and start pulling Britain down, he might bring down an autumn budget to check a serious decline.

Butler spoke of his new spending blueprint as a "carry-on" budget. Last year, he told Commons, Britain had the most prosperous year in its history. Production rose by £500-million. Add the net improvement in the country's foreign balances, and you get a total addition to real income of £800-million.

It's an economic record that the Churchill government is proud of—in fact, they think it's good enough to win for them at the polls if they decide to mount a fall election.

• **Record of a Boom**—Since 1951 the Churchill government has abolished almost all the economic controls and rationing restrictions it inherited from Labor without either upsetting labor-management peace or causing a currency crisis. Although the income distribution in Britain today is slightly less favorable to the workingman, the average living standard of the British people is now higher than ever.

The Conservatives can claim credit especially for the boom conditions of the last year. Britain has not only outgrown its 1952 recession but has continued to expand production, employment, trade, and personal incomes while the U.S. economy has been slowing down.

To all this, the Labor opposition has no politically effective answer. Labor

merely charges that "freedom" will bring disaster when Britain's luck changes. The British people no longer accept the idea, long fostered by the Socialists, that the Conservatives are unable to rule a democracy successfully.

On top of this economic record, the Churchill government is given fairly high marks for its foreign policy. Despite the current flurry over the H-bomb, Britons certainly feel that the war danger is more remote than when Churchill came to power.

• **Gains**—The government's annual Economic Survey, published a week before Butler's budget, gives a clear picture of last year's economic gains. Here are some of the key points:

- Gross national product rose by 8%, and only half of this was due to price increases.

- Industrial production rose by 6%, topping the gain made in 1951.

- Unemployment dropped to 11% of the insured working population.

- Farm output hit a postwar peak.

- Total personal incomes were up 6%.

- Gross trading profits of private companies rose by 7% to 8%.

Besides this, personal savings started to revive. The British treasury says that the rate of individual savings in Britain now is comparable with that in the U.S. This unexpected and dramatic shift reveals how much the economic climate has changed in Britain.

Britain did almost as well with its



"POWER OFF!" Test operations are directed from this central control room, where special measuring instruments greatly speed up the collection of pump performance data. That's one way Worthington products are made more reliable by using . . .

...the world's most versatile hydraulic proving ground



COMPREHENSIVE TESTS are run on a Worthington centrifugal refrigeration unit (lower left), soon to go into service as one of the Arabian American Oil Company's central air conditioning units in Dhahran, Saudi Arabia.

When you make pumping equipment that has to stand up and deliver year after year anywhere in the world, you've got to be sure it will perform as specified.

That's why we built one of the world's largest hydraulic test stands at our plant in Harrison, New Jersey. Here, over a half-acre "lake", we can check the performance of anything from a fractional horsepower unit to pumps handling over 100,000 gallons a minute. When you realize there are thousands of sizes and types of centrifugal pumps alone, you get an idea of the versatility we had to build into our proving-ground.

Naturally, our new test equipment is a big help to our research engineers, as well as our customers. Now they get performance data on products quickly and accurately. Using it, we can save months, even years, in developing new Worthington fluid and air-handling devices — equipment for which this company has been famous for over a century. For the complete story of this proving-ground, write for RP-672. Worthington Corporation, Harrison, New Jersey.

3.19

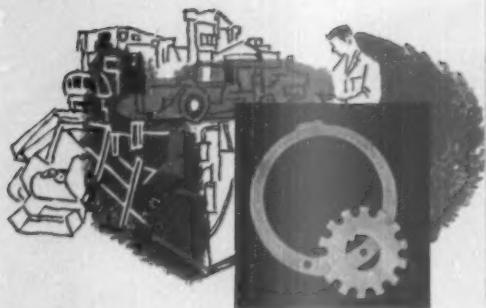
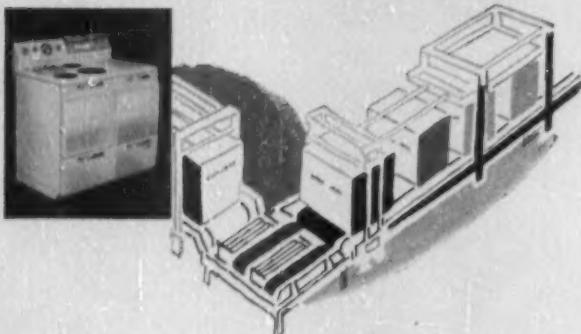
WORTHINGTON



THE SIGN OF VALUE AROUND THE WORLD

AIR CONDITIONING AND REFRIGERATION • COMPRESSORS • CONSTRUCTION EQUIPMENT • ENGINES • DEAERATORS • INDUSTRIAL MIXERS • LIQUID METERS
MECHANICAL POWER TRANSMISSION • PUMPS • STEAM CONDENSERS • STEAM-JET EJECTORS • STEAM TURBINES • WATER TREATMENT APPARATUS • WELDING POSITIONERS

Largest shipping case gluer and sealer ever built by Standard-Knapp reduces by 50% the cost of packaging electric ranges



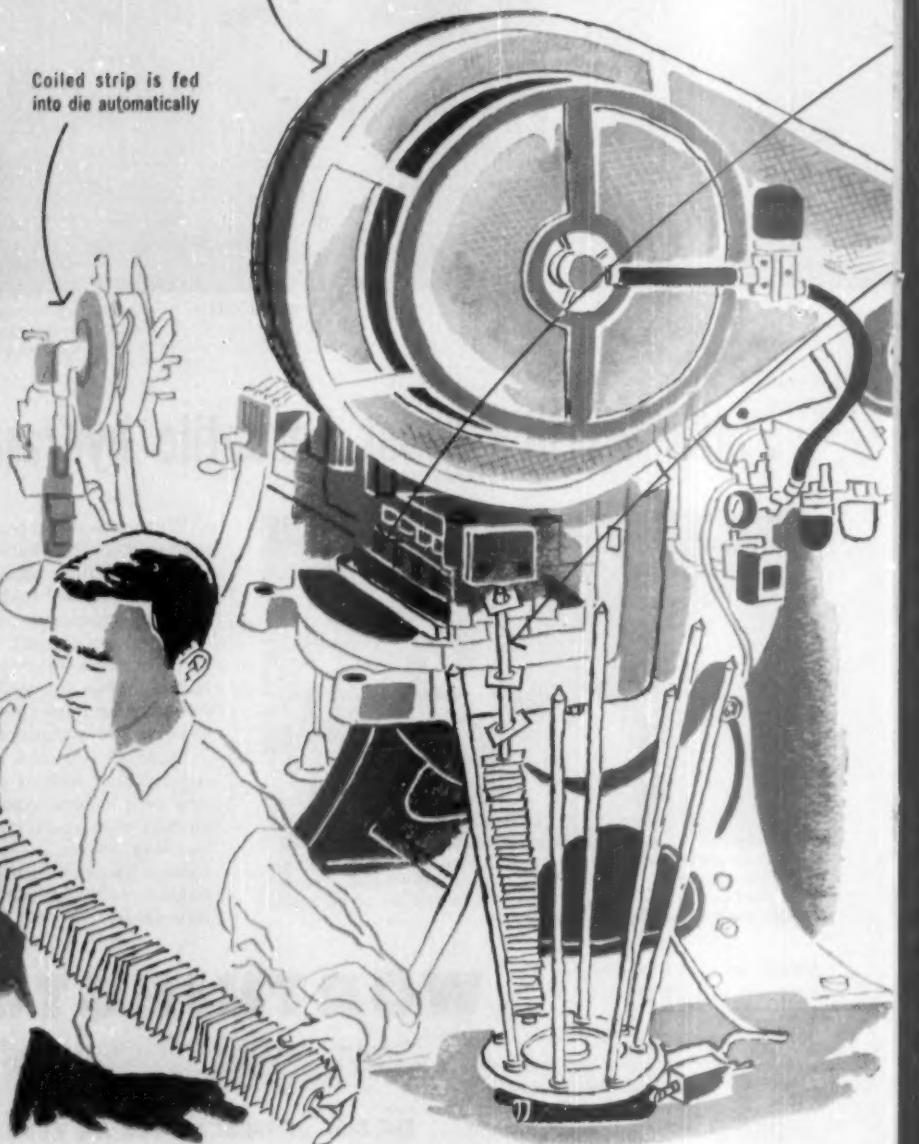
Wallace Barnes, Division of Associated Spring, gets ten times as many stampings between grinds with Henry & Wright Dieing Machine

IN QUICK RHYTHM V&O PRESSES PRODUCE FINISHED PARTS



Part of a complete line of equipment for glass manufacturing, Hartford-Empire I.S. Machine forms bottles and jars at high speeds, to highest quality standards

Coiled strip is fed into die automatically



Loaded rods are easily removed, simplifying parts delivery to major assembly point

automation that's down-to-earth

*is one of many ways Embart companies
help customers boost product salability*

With each stroke V & O press
performs eight operations

Finished parts are stacked on rods
which are automatically indexed

Power presses with dies merely form metal items. But add mechanical feeding, transferring and assembling devices — as V & O is doing for an increasing number of companies — and power presses literally become factories in miniature. Integrated mechanical motions replace separate and scattered manual movements. Manhour productivity increases. The human factors in quality control are minimized. From the resulting lower product cost and better product quality, comes improved product salability.

The other Embart divisions are equally skilled in knocking the supports out from under "solidified" costs. Henry & Wright Dieing Machines demonstrate every day that new and unexpected savings are possible in metalworking. Standard-Knapp, with its wide experience in packaging techniques, can help you realize new economies in packing and preparing your product for shipment. If you produce glass products, the outstanding equipment and resources of Hartford-Empire are available.

Emhart Mfg. Co.

Only the best is good enough

NEW LITERATURE

Check any product information
you want and mail this coupon to
any Embart unit listed below . . .

HENRY & WRIGHT

Division of
Emhart Mfg. Co.
510 Windsor Street
HARTFORD 5, CONN.

HARTFORD-EMPIRE CO.

Division of
Emhart Mfg. Co.
HARTFORD 2, CONN.

THE V & O PRESS CO.

Division of
Emhart Mfg. Co.
400 Union Turnpike
HUDSON, NEW YORK

STANDARD-KNAPP

Division of
Emhart Mfg. Co.
PORTLAND, CONN.

GLASS

Batch Chargers Forming Machines
 Feeders Lehr Loaders
 Lehrs Unit Melters

PACKAGING MACHINES

Unloaders Packers
 Rinsers Labelers
 Cartoners Case Cleaners
 Gluers &
Sealers Palletizers &
De-palletizers

METAL WORKING

Henry & Wright Dieing Machines
 Henry & Wright "Press Load Calculations"
 Henry & Wright Case Histories
 V & O Inclinable Presses
 V & O Notching Presses
 V & O Roll and Dial Feeds
 V & O Feed-O-Matic

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY & STATE _____

THIS . . .  **is a remarkable valve, as you will quickly see when you look inside**

... Lubricant goes in through the stem  **and is forced through grooves in the plug . . .**  **and body**

. . . In service, this lubricant does three things—it lubricates the seat . . . 
—it seals off the seating area . . .  **and it acts as a hydraulic jack . . .**  **to keep the plug in position to turn easily. Consequently**

this valve  **is safer, because it can always be operated in an emergency, and, because lubricant**  **stops seepage before it starts. It's also more economical**

COSTS  **because, by eliminating friction and abrasion, lasts much longer than most valves. What kind of valve is it?**

Naturally, it's **ROCKWELL-NORDSTROM**, **built by** **ROCKWELL** **Manufacturing Company,**

Pittsburgh 8, Pennsylvania.

Canadian Licensee:
Peacock Brothers Limited



foreign accounts. True, the value of its physical exports remained almost the same. But the country was able to buy larger volume of imports for less money because of falling food and raw materials prices. Moreover, invisible earnings, especially from British oil companies, rose sharply. So the country showed a surplus of £225-million in its over-all trade accounts if you add in the £102-million London received from Washington in defense aid. That was almost as big a surplus as in 1952 and accounted largely for a £240-million increase in London's gold reserves.

• **Prospects**—Butler figures that the prospect for this year is good, assuming that American recession doesn't cut much deeper into British exports. Imports may have to go up slightly to allow for rising production. But both exports and invisible earnings are expected to stay at about the current level, which is 5% above the average for 1953.

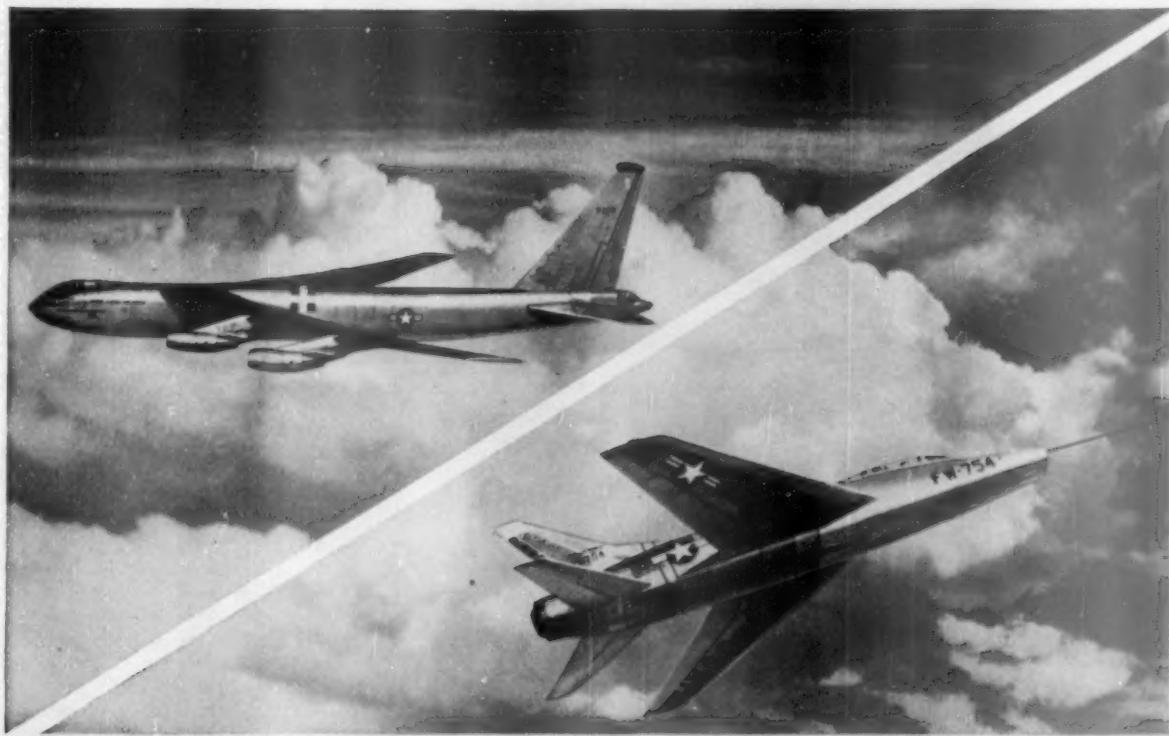
• **Sterling**—Britain's economic comeback shows up in the increasingly strong position of sterling on world currency markets. Over the past 12 months the government has taken some risk in lifting exchange controls piecemeal and reopening Britain's commodity markets; last month this movement toward freedom brought the reopening of the London gold market. Yet month by month the pound has grown stronger. And in March more gold flowed into the Bank of England than in any month for a year. The fact is that confidence is rising in both official and banking circles in London that convertibility of sterling may become possible this fall.

• **Clouds**—There are two big clouds, though, on the British economic horizon: (1) growing competition in export markets, especially from the Germans and Japanese; and (2) the stagnation in business expenditures on new plants and equipment, which is bound to weaken Britain's long-term position.

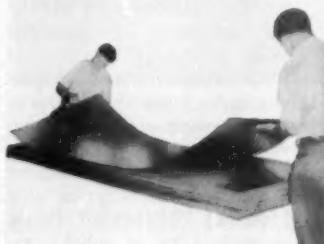
• **No Gains**—It's the latter point that especially worries many Britons. The 1953 increases in Britain's earnings, remarks the London Economist, was mostly gobbled up by a big increase in consumption and by rising expenditures on defense, housing, stockpiling, and fixed investment in nationalized industries. Neither private investment nor exports rose at all.

This is the big reason why business had its hopes up for a budget chock full of tax incentives. But Chancellor Butler, with an eye on the encouraging economic performance of 1953, in effect called on business to stimulate itself.

"I shall make no changes," he said, "for changes' sake," and left it up to British businessmen to cinch up their belts and go to work.



Rem-Cru titanium is used extensively in such advanced production aircraft as North American's F-100 Super Sabre, and the eight-jet Boeing B-52 Stratofortress.



Designing better aircraft with **TITANIUM...**

Titanium's superiority over other structural metals becomes more apparent every day as new applications are developed for its use.

For example, since this new metal first became available in production quantities, aircraft designers have come to regard it as an essential in many types of modern aircraft. Supersonic aircraft use titanium in many vital parts. Fire walls, shrouds, cowling, skin-sections, compressor wheels and blades are a few of the places where Rem-Cru titanium's high strength-to-weight ratio and excellent corrosion-resistance do the job better than any other structural metal can.

And titanium's advantages aren't limited to the aviation field. Many chemical processors have

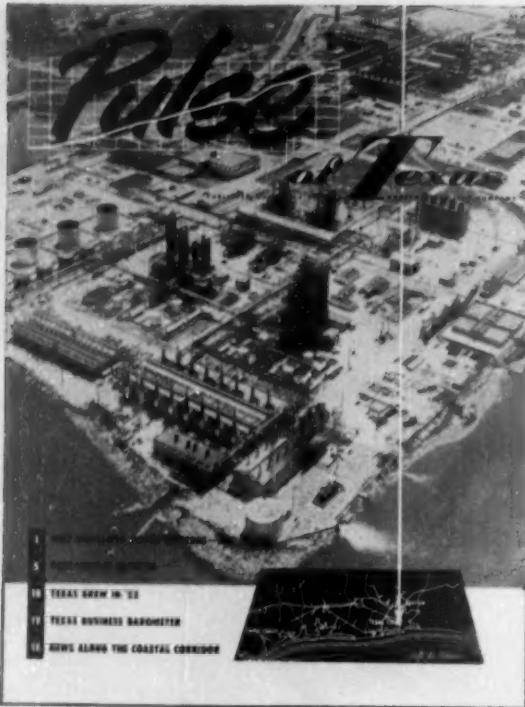
discovered that titanium's exceptional resistance to many forms of corrosive attack make it an ideal choice for them.

In fact, many new, widely divergent applications are being found for this versatile metal as expanding production makes more and more of it available. Now, Rem-Cru, a principal producer of titanium is making titanium bars, plates, sheet, strip, wire, tubing, forgings and billets. And our production facilities are currently being expanded to several times present capacity.

Why not investigate the possibility of improving your product or processing application with titanium. Rem-Cru engineers have test data available. Let us help you.

REM-CRU TITANIUM

REM-CRU TITANIUM, INC., MIDLAND, PENNSYLVANIA



HAVE YOU SEEN THE NEW *Pulse*?

From cover to cover PULSE OF TEXAS is completely new! It's bigger . . . it has an entirely new format that includes more articles, more pictures, more information about the Coastal Corridor.*

It contains case histories of industries that have come to the Corridor, special features about—but, read for yourself the contents of the current issue:

- Why Monsanto came to Texas—and stayed
- Dow likes it in Texas
- Texas grew in 1953
- News along the Coastal Corridor

You'll find the new PULSE more interesting than ever. If you aren't on the mailing list, a request will bring you PULSE regularly.



The industrially expanding strip of Texas Coast served with natural gas by the Houston Pipe Line Co.

HOUSTON PIPE LINE CO.
Subsidiary of Houston Oil Company of Texas

Wholesalers of
Natural GAS

Made-in-Japan . . .

... goods will flow more freely to Canada under a new trade pact . . . U.S. fair in Mexico bogs down.

Canada is busily nailing down its growing market in Japan. Last week Ottawa signed a new trade agreement with Japan, giving Japanese goods most-favored-nation rights in the Canadian tariff structure. Early this week a 58-man Canadian trade mission arrived in Tokyo to drum up new business.

• More Japanese Goods—Japan, with \$119-million in purchases last year, has become Canada's third largest customer—and the best customer for Canadian wheat, now in surplus. But Japan has been able to sell only a piddling amount in Canada. By granting the Japanese a chance to sell more, Canadians hope to protect their own market in Japan.

On ratification of the trade pact, Canadian tariffs on Japanese goods will drop 5% to 20% on certain textiles, toys, cameras, steel products, pottery, machinery. This has brought a howl of pain from Canada's textile industry, already hard-pressed by U.S. and British competition. Canadian exporters, on the other hand, welcome the pact and point out to textile men that the trade deal includes antidump provisions that can be invoked if Japanese goods threaten "serious injury" to Canadians.

Moreover, some Canadians believe Japan will proceed carefully in sore spots like textile. They expect Japan, instead, to push sales of machinery, optical and engineering equipment—which might compete with U.S., British, and German sales in Canada.

Come to the Fair?

Mounting a trade fair seems to be a difficult business for Americans. Right now, a West German industrial exposition is enjoying a successful run at Mexico's University City, just outside Mexico City (BW-Apr. 3 '54, p134). Mexicans were expecting a U.S. show next month, on the same site. But at mid-week, the U.S. affair was bogged down.

When the idea of a U.S. exhibition was broached several months back, it failed to get the backing of the American Chamber of Commerce in Mexico, which represents the majority of U.S. companies in the country. Apparently the chamber was leery of the plans for the show.

Then the fair's sponsor, a private U.S. promotion group, got the backing of the Mexican Chamber of Commerce

Your business is in the Age of Electronics



Electronic test instruments used daily at Friden include Hewlett-Packard oscillators, voltmeters, power supplies, electronic tachometers and the new, amazingly versatile -hp- electronic counters.

Electronic test instruments save engineering time, cut manufacturing costs at Friden

Like manufacturers in many fields, Friden Calculating Machine Co., Inc., finds electronic test instruments save hours of engineering time and cut production costs. Friden engineers use these new measuring tools of industry to evaluate circuits, determine electrical requirements, check stability, match relay closing times and study performance of pilot models. Friden production workers use similar instruments in rigid quality control inspections.

Hewlett-Packard is a pioneer and world

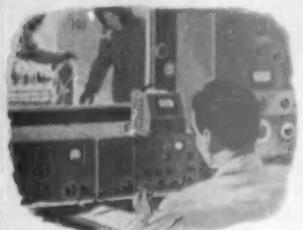
leader in electronic test instruments—the basic measuring tools used today throughout manufacturing and process industries, in scientific research, communications and military installations. Correct application of such equipment is of the first importance; Hewlett-Packard field engineers can tell quickly whether any of over 200 different -hp- instruments are applicable to your needs. A letter stating your requirements will receive prompt attention; investigate today! Write Dept. B.



Railways are increasingly large users of electronic equipment—for signaling, safety and communications. -hp- instruments help keep railway electronic devices functioning correctly, dependably.



Textile experts now measure wool's strength, hand and durability by electronics; improve wool products with information instruments like -hp- harmonic wave analyzers, amplifiers and voltmeters provide.



Throughout science and industry, electronic test instruments make routine measurements faster, more accurately; increase knowledge by making other kinds of measurements once not possible. Electronic test instruments work by measuring or comparing electrical impulses from natural or man-made sources.



ELECTRONIC MEASURING
INSTRUMENTS

HEWLETT-PACKARD COMPANY

395 PAGE MILL ROAD • PALO ALTO, CALIFORNIA

FIELD ENGINEERS IN ALL PRINCIPAL AREAS

2000

Automatically COOLS when you need it—
Automatically SHUTS OFF when you don't!

NEW 1954

CROSLEY

PUSH-BUTTON Room Air Conditioner
 WITH THE EXCLUSIVE

Climate Timer



MODEL ACFT-750.



**the world's first and only
 fully automatic room air conditioner**

Saves electricity—shuts itself off automatically while you're away.

No waiting for rooms to cool—Climate Timer pre-cools automatically for your return. Set it hours, days, even weeks in advance!

No "overcold" rooms—Crosley Thermostat Control maintains just the right degree of coolness in your room automatically . . . whether outside temperatures rise or fall.

You'll breathe the difference—Crosley cleans as it dries as it cools the air.

In Canada: Mulfats, Ltd., Montreal, Vancouver, Winnipeg, and Waterloo, Ontario

Dept. BW-410, Crosley
 Appliance & Electronics Division
 AVCO Mfg. Corp., Cincinnati 25, Ohio

Please send me your free booklet describing the greater convenience and economy now possible with Crosley.

Name _____

Address _____

City _____ Zone _____ State _____

for a hands-across-the-Rio Grande exposition.

• **Second Look**—The American chamber then had a change of heart. Without granting its official approval, the chamber decided to encourage its members to take part in the show. Otherwise, U.S. businessmen might lose face in the eyes of Mexicans.

This week brought another road-block—the Mexican government withdrew its approval to use University City as an exhibition site. The decision came as Mexican students, apparently egged on by extremists, protested.

There's still a chance that the government decision can be reversed. But it begins to look as if the U.S. trade fair, ill-starred from the beginning, won't come off at all.

BUSINESS ABROAD BRIEFS

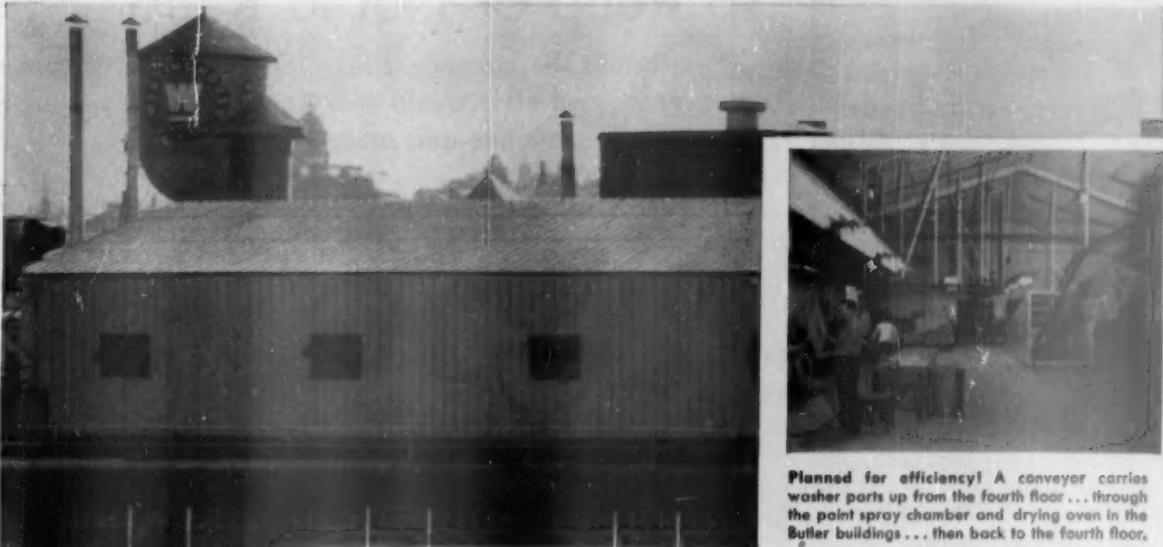
Brazil's new refinery at Cubatao will get all its crude oil from U.S. companies. The Esso Oil Export Corp. and Standard Oil of California will supply the refinery's daily needs of 45,000 bbl. Meanwhile, President Vargas has turned over all government oil holdings and assets to the state oil monopoly—Petrobras—set up last year (BW—Sep. 26 '53, p168).

Red China may be softening its tough trade policy to lure Japan. Taiyo Busan Co., Tokyo, is to get delivery on 1,500 tons of magnesia clinkers and 1,100 tons of talc from China before it sends the quid pro quo of 4,600 bicycles to the Chinese mainland in May. It's the first time the Communists have agreed to a barter deal under which they'll ship their goods before the arrival of Japanese products.

Japan will slash imports by 20% this year, down to \$2.1-billion. Slated for heaviest cuts are automobiles, scrap iron, coal, and sugar. The new move is aimed at the Japanese trade deficit, which last year topped \$1-billion (BW—Dec. 5 '53, p138).

French interests are plunging into Venezuelan oil. A new company, underwritten mainly by France's Suez Canal Co., has obtained a concession in Barinas State, 300 miles southwest of Caracas. Up to now, only U.S. and British-Dutch companies have been operating in Venezuela's oil fields.

Optimism: Capital that began to flee the British colony of Hong Kong with the Korean outbreak is beginning to filter back. Since Jan. 1, some \$35-million has passed through Hong Kong's banks en route to investment in local real estate and manufacturing.



Planned for efficiency! A conveyor carries washer parts up from the fourth floor . . . through the paint spray chamber and drying oven in the Butler buildings . . . then back to the fourth floor.

"Westinghouse builds 5th floor space for only \$2.64 per square foot with **BUTLER** buildings"

says Chris Reining, Works Engineer, Electrical Appliance Division
Westinghouse Electric Corporation, Mansfield, Ohio

"'You can be sure if it's Westinghouse' is backed by continuous effort to improve appliances," says Mr. Reining. "And our decision to apply a special rust and corrosion-resistant primer coating to our automatic washers meant that we had to have additional production space. To get this space as economically as possible—without disrupting our manufacturing efficiency—we had two Butler steel buildings erected on the roof of one of our 4-story factory buildings.

"Our installation proves the complete adaptability of Butler buildings," Mr. Reining says. "They have given us fifth floor production space for only \$2.64 a sq. ft.—*including* building erection, insulation and lighting.

"Butler's post-free, truss-clear interior gives us the clear-span space we need for our spraying and drying equipment.

Rigid-frame, all-steel construction gives us structural strength for our conveyor . . . does it without putting too much weight on the old building. It also furnishes good fire protection, which is especially important with inflammable thinner in the buildings. And even though the buildings are up where they're exposed to summer heat and winter winds, the weather-tight Butler sheeting and rock wool-asbestos insulation keep them comfortable the year around."

See your Butler building dealer right away! He'll show you Butler rigid-frame and bowstring-truss buildings—in widths, lengths, single and multiple installations—to fit your site and use. He'll help you with your plans . . . show you how you can make your building dollars go farther than ever. Write office nearest you for name of your dealer and more details by mail.

100 feet above the street! Two Butler buildings, a 40' x 120' and a 40' x 80' . . . on the roof of a 4-story factory building . . . give Westinghouse 8,000 sq. ft. of new production space.



BUTLER MANUFACTURING COMPANY

7313 East 13th St., Kansas City 26, Missouri
913A Sixth Ave., S.E., Minneapolis 14, Minnesota

1013 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 13A, Richmond, California

Manufacturers of Oil Equipment • Steel Buildings • Farm Equipment • Cleaners Equipment • Special Products

Factories located at Kansas City, Mo. • Galesburg, Ill. • Richmond, Calif. • Birmingham, Alabama • Minneapolis, Minn.

for maintenance jobs!

...use

FIR PLYWOOD

Saves time and money—builds sturdy, economical partitions, bins, lockers. For 1954 Catalog, write U.S.A. Douglas Fir Plywood Assoc., Tacoma 2, Wn., or see your lumber dealer!

Buy Only DFPA-Trademarked Panels

HOST TO MOST WHO VISIT BALTIMORE

LORD BALTIMORE HOTEL

Since this, Baltimore's largest hotel, is normally favored by most visitors, we suggest that you write or teletype BA263 for reservations.

from

OFFICE MANAGER

to

GENERAL MANAGER

yes, that is the calibre of the personnel available to your organization through BUSINESS WEEK'S classified advertising section. See page 190 of this issue.

clues

To Keep or Not to Keep

That is the question over German property confiscated during and after World War II. There are strong arguments—both economic and moral—on both sides.

Pvt. Henry Gerkin, Army of the United States, was killed while storming a German strong point in July, 1944. He received the Bronze Star posthumously. He left some \$14,000 in his will to aged parents living in Germany. In 1949, the Attorney General of the U.S. took title to Gerkin's estate under the Trading with the Enemy Act, which provided for the confiscation of all German and other enemy assets in this country.

Over half a billion dollars' worth of property—mostly German—was taken over along with Gerkin's estate. All kinds of things from trunks full of old clothes to the huge General Aniline & Film Co., worth \$140-million, were involved. Most of them had been seized as alien property at the start of the war. The War Claims Act of 1948 declared that these assets were owned by the government and sternly forbade returning any of them to their owners—ever.

But today the U.S. is having second thoughts. There's a lively debate going on in Washington between those who want to hold onto the German assets and those who want to return them immediately. Chances are good that the next few months will bring a bill before the Congress designed to hand back the property.

• **Shift**—As late as 1948, the seizure of enemy property seemed reasonable to Congress. Today, however, West Germany is our strongest ally in Europe. The shifting pattern of world power relations is forcing Washington to reconsider its entire postwar reparations policy.

There's mounting—and uncomfortable—pressure from Germany itself. Chancellor Adenauer has pleaded publicly for the quick return of seized property. He is under pressure from the right wing of his coalition majority, and from businessmen, to get the assets back.

Several weeks ago, President Eisenhower expressed sympathy for the return of the assets. And the State Dept., eager to help Adenauer, tends to favor the move. One factor that tempers Administration enthusiasm for returning the assets is the violent objection of Britain and France. Both are frightened by the rapid revival of German economic strength; naturally they look askance at anything that would give Germany a further edge in world markets. And they fear that if the U.S. starts returning assets, it will spark Ger-

man agitation for them to do the same.

• **Proposal**—Nevertheless, Sen. Everett Dirksen of Illinois is drafting a bill right now to return some \$450-million in seized German assets. Property now in the hands of the Office of Alien Property would simply be handed back—minus a reasonable handling charge. Owners whose assets have already been sold by OAP would be compensated in cash out of a special appropriation.

Dirksen's proposal will get a hearing from many congressmen. They have been receiving thousands of letters from angry constituents whose relatives in Germany have been hurt by the take-over. U.S. observers in Germany have protested that the reparations policy singled out for punishment the very Germans who—through owning property in this country—had the strongest ties with the U.S.

Only the price tag on the Dirksen bill will make it tough to sell to an economy-minded Congress. It would cost perhaps \$220-million to compensate Germans for property already sold.

• **Moral Questions**—Beyond the problem of cost is the philosophical argument over reparations in general. Republican supporters of Sen. Dirksen feel that the sanctity of private property is at stake. They ask why Germans who happened to own property abroad should have to pay for the sins of their government when many fellow citizens at home—such as industrialist Alfred Krupp—have had their property restored.

Confiscation of private foreign assets, these congressmen argue, certainly doesn't square with U.S. efforts to encourage foreign investment. And finally, it doesn't make sense for the U.S. to expropriate a few hundred million dollars from individual Germans, while spending billions in aid to buy German good will and economic health.

• **Communist Plot?**—Some supporters of the Dirksen proposal even claim to see sinister forces behind the policy of confiscation. They allege that the post-war reparations policy was drafted by Harry Dexter White and other suspected Communists, on Moscow's orders, to destroy Germany.

The truth is probably less melodramatic. There was a general Allied agreement that Germany should pay some form of reparations.

But an attempt was made to avoid the mistake made after World War I, when heavy reparations payments out of current earnings were among the



What's behind this perfect "Flash-in-the Pan"?

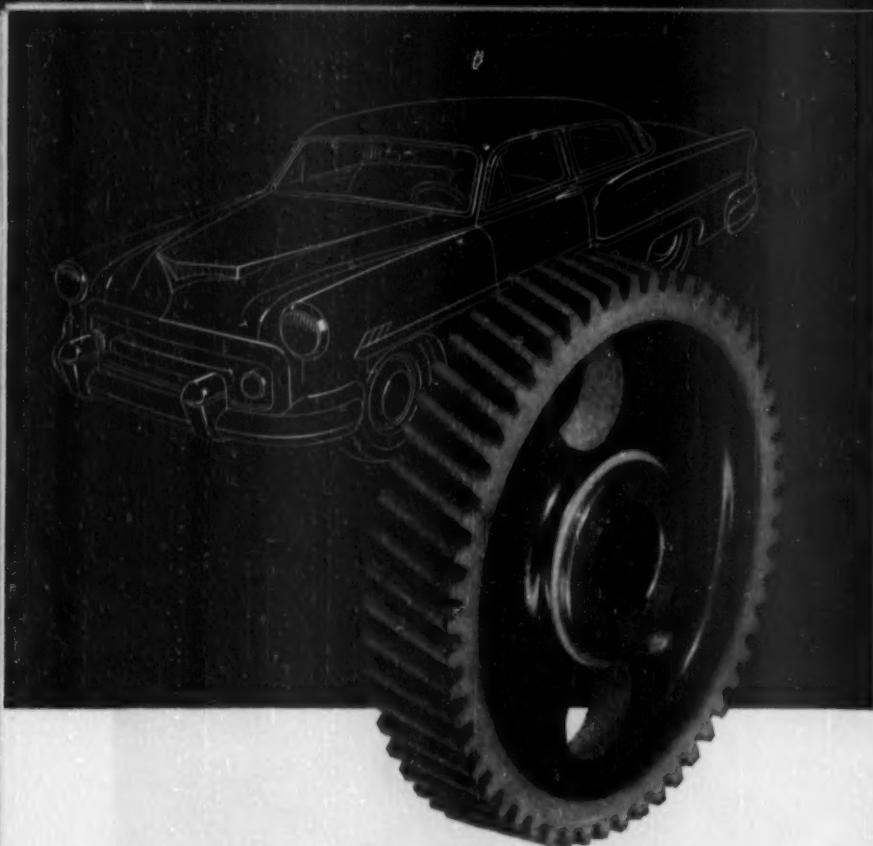
Top camera-makers in this country use Bristol Brass in their flash reflectors... because Bristol Brass draws evenly... just a true, unblemished surface that takes a smooth, even plate and focuses the most light where it will do the most good.

This is a businesslike example of one of the many good reasons why so many fabricators of so many different types of products won't settle for anything but *Bristol* Brass strip, coil, rod and wire. See what Bristol's Sales Engineering Service can do to help with *your* fabricating problems. And this service is no farther away than your telephone: Bristol 9246 — or wire or write:

THE BRISTOL BRASS CORPORATION

has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21.

"*Bristol-Fashion*" means **Brass at its Best**



Here's what **micarta** LAMINATED PLASTICS is doing for automobile engines!

A leading automobile manufacturer wanted a timing gear that was slow-wearing, silent in operation, low in cost. Now, more than six million MICARTA timing gears are performing efficiently in engines.

What can Micarta do for you?

Your problem may be as simple as noise control, or electrical insulation. Perhaps you need a material that is both light and strong, that resists corrosion, withstands vibration, heat, cold or compression. Whatever your problem, your industry, or your application, investigate the qualities of versatile MICARTA.

For prompt and complete information, fill out the coupon below.

YOU CAN BE SURE...IF IT'S Westinghouse

**micarta
is basic!**

Westinghouse Electric Corporation
MICARTA Division, Trafford, Pa.
Attention: L. A. Pedley
Sir: (Please check one)
 Please have your representative call
 Please send me the complete facts
on MICARTA

Name _____ Company _____
Address _____
City _____ Zone _____ State _____
J-06511

causes of Germany's economic collapse.

The Germans now argue that confiscation of their foreign investments, trademarks, copyrights, and patents hurt their foreign trade position more in the long run than a comparable levy on earnings. Some 500 German trademarks were seized and sold to Americans. German manufacturers of the products can't sell them in the U.S. market without permission, difficult to get, from the new owners.

• **Intention**—On the other side of the fence, defenders of the postwar reparations policy in Washington argue that reparations do in fact act as a deterrent to future aggression, and that war victims are morally entitled to compensation. Seizure of private enemy property abroad was merely the easiest technical way to exact reparations. It was not intended to punish individuals—indeed, the defeated nations have bound themselves to compensate the owners of confiscated assets.

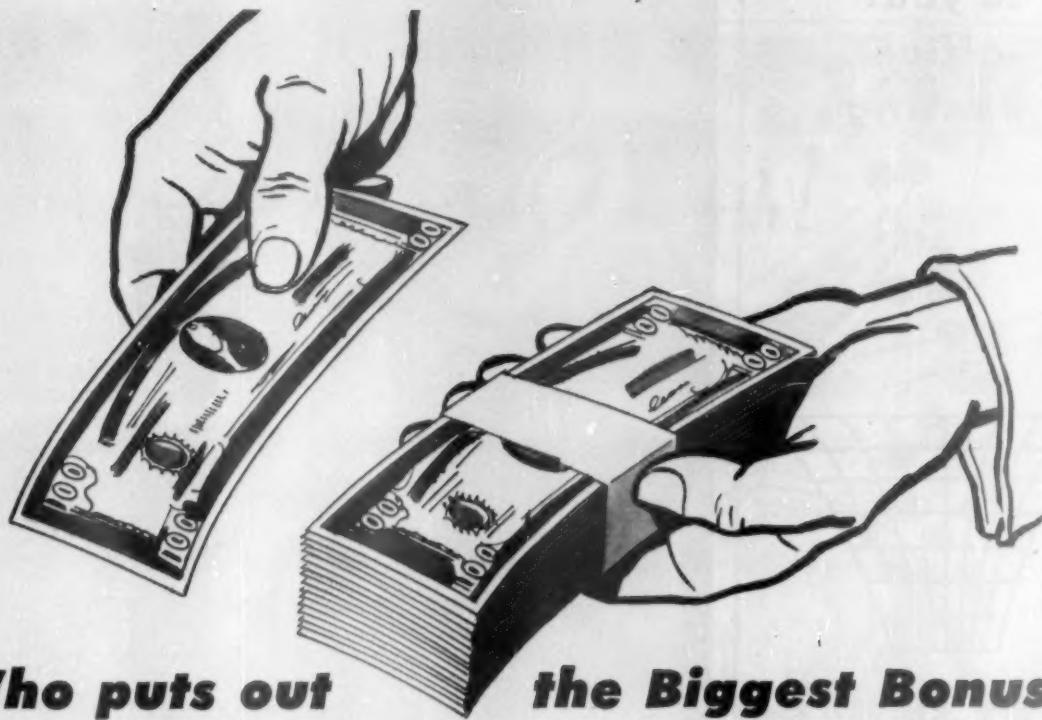
Germany's pleas that reparations hurt its foreign trade don't impress supporters of the policy. Britain, France, and other allies, after all, were forced to liquidate the bulk of their foreign investments to pay for World War II.

• **Cumbersome**—This much is certain about the confiscation policy: It has been extremely cumbersome to put into effect. The law required that all claims against seized properties be settled before they could be sold. This has plunged the Office of Alien Property into a quicksand of litigation. Some 65,000 claims have been filed against property taken over, and less than 10,000 have been settled.

The case of General Aniline & Film shows the density of the red tape involved. A Swiss holding company—Interhandel AG—has spent about six fruitless years in court trying to regain GAF, seized as German property in 1942. Interhandel is now only as far as the U.S. Court of Appeals with its case. It claims that GAF is largely Swiss property, not merely a cloak for I.G. Farben chemical interests, as the U.S. maintains.

• **Progress**—So far, the Office of Alien Property has managed to dispose of about \$330-million in enemy property, out of a total of \$498-million. About \$135-million of this represented interests in businesses. The rest involved securities, patents, cash, real estate, copyrights. A hard core of \$200-million remains to be disposed of, in which GAF is the largest chunk.

The sheer difficulty and expense of getting rid of enemy property is one of the stronger arguments for giving it back to the Germans. That way, the U.S. government could get out of a business that threatens to last at least a generation.



Who puts out the Biggest Bonus?

How would you like to have a half-million dollar bonus this year—all nicely gift-wrapped in the form of shiny new power equipment?

Could happen right in your own plant. In fact, POWER magazine recently gave the facts on just such a case...

The management men in this Midwest company didn't realize that up-to-date power equipment would quickly pay for itself while boosting profits. Then their own engineers sold them a power-modernization program. It cost \$5,017,000. Annual savings are \$510,000. The job more than pays for itself in ten years.

How is this possible?

Two of your toughest costs, fuel and labor, have more than *tripled* in recent years. Cutting them back with modern equipment will earn many dollars for you, every minute.

Maybe your opportunity is not this big. On the other hand (if your power equipment is outdated) who knows *how much* money you may be serenely shoveling out through your stacks?

Who knows? One man. The engineer in charge of your power services. The man who makes and delivers your power, and puts it to work on production machinery.

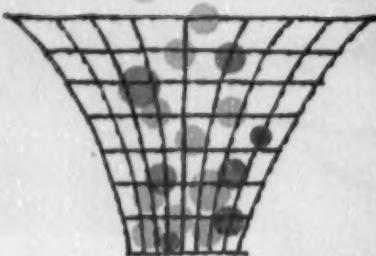
Why not take a good close look, with him, and see how much up-to-date equipment can do. How big a bonus can he pay you next year?



**One of America's
primary industrial media
and a member of
the Audit Bureau
of Circulations**

MCRAW-HILL . . . ABP

is your
office
wasting



\$21,000?

For graphic proof—send for
Apsco's booklet, "THE MYSTERY
OF THE HIDDEN COSTS."

You might not be aware of it . . .
but it's entirely possible that
your own office is wasting \$21,000
a year through improper pencil
sharpener placement. Don't delay,
send for your FREE copy today.

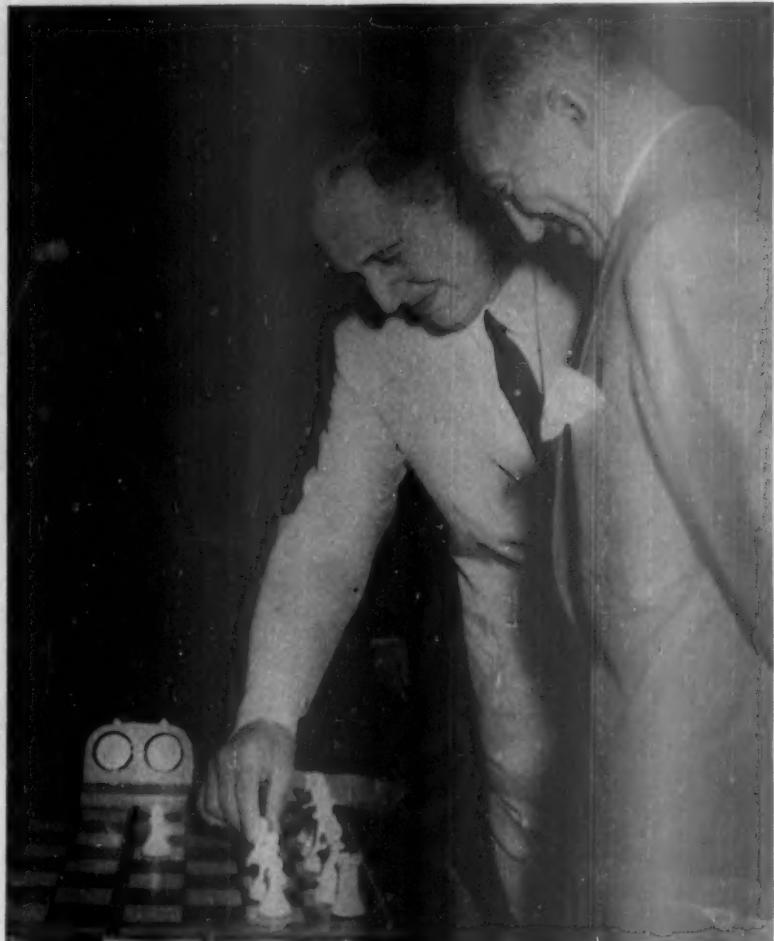


APSCO

APSCO PRODUCTS INC.
DEPT. B-10
338 NORTH FOOTHILL ROAD
BEVERLY HILLS, CALIF.

Yes, I'm interested in reducing
office overhead. Please send me
your free booklet.

NAME _____
(Attach coupon to your letterhead or
business card and mail today!)



PRESIDENT JUAN PERON launches a chess match with the Russians, as . . .

Argentina Woos Soviet Trade

U. S. sales sag as Peron gets the trade wheels turning
with Western and Eastern Europe. He's pushing barter deals
with Iron Curtain countries.

Two weeks ago Russia sharply increased its orders for Argentine hides, butter, and mutton. Last week a \$50-million Dutch-Argentine trade deal was tentatively approved. Early this week West German Economics Minister Ludwig Erhard, on a hemisphere tour (BW-Apr. 3'54, p134), arrived in Buenos Aires; an East German trade mission is expected in May. In the near future Yugoslav trade officials are due in Argentina's capital. Meanwhile, an Argentine mission is scouting for business in Czechoslovakia and Hungary.

Add it all up, and you can support these conclusions:

- Europeans, both East and West, are becoming more interested in the Argentine market.

- President Juan Peron is firmly

committed to barter as his trade policy, and is pushing barter deals hard in an effort to exchange Argentina's farm products for desperately needed machinery and raw materials.

- Peron is taking the Western Hemisphere lead in trade with Iron Curtain countries.

- Flagging Flow—The first two points should make it obvious to American businessmen that they cannot expect any substantial upturn in sales to Argentina. The U. S. share of the market has been falling off steadily; last year Argentine imports of made-in-U. S. products totaled \$104-million, down 29% from 1952. And while Argentina will have to import more goods in 1954, a growing part of the trade seems bound up in barter deals that rule

ALONG THE WAY... OF **TWA**

Modern Pegasus... No Myth!

THE "WINGED" HORSE OF TODAY IS FACT... NOT FICTION. HE'S SKYBORNE COMFORTABLY, SAFELY, SWIFTLY VIA TWA'S TRANSATLANTIC SKYMASTER FLIGHTS. TRAVEL TIME'S AS IMPORTANT AS TRACK TIME WHEN THOROUGHBREDS MUST MEET RACING SCHEDULES BOTH IN U.S.A. AND OVERSEAS. LEADING STABLE OWNERS ALSO SHIP BREEDING STOCK THIS EASY WAY. WHETHER YOUR SHIPMENT IS LARGE OR SMALL, TWA GIVES THE SAME CAREFUL, SPEEDY SERVICE. INQUIRE ABOUT SPECIAL COMMODITY RATES FOR YOUR PRODUCT. PHONE TWA TODAY.



direct all-cargo service

NOW TWA OFFERS ROUND-TRIP ALL-CARGO FLIGHTS DIRECT NEW YORK-LONDON WITH "SPEEDPAK" SERVICE ON TO FRANKFURT... IN ADDITION TO THE ALREADY POPULAR NEW YORK-PARIS WEEKLY SKYMASTER SERVICE WITH "SPEEDPAKS" TO GENEVA, MILAN, ROME, ATHENS, CAIRO, BOMBAY, CEYLON. TWA IS ONLY AIRLINE SERVING BOTH LONDON AND PARIS FROM U.S. WITH REGULARLY SCHEDULED ALL-CARGO FLIGHTS.

STUDY IN DIMENSIONS

PROCESSING MACHINE USED IN MICROFILMING OLD WORLD HISTORY IN ROME SHIPPED FROM U.S. WEST COAST VIA TRANSCONTINENTAL AND TRANSATLANTIC SKYMASTER FLIGHTS.

CRATE MEASURED
88" LONG; 36" WIDE;
63" HIGH... TOTAL OF 112 CU.FT. WEIGHED 2400 LBS.
YOU CAN SHIP ALMOST ANYTHING ALMOST ANYWHERE VIA TWA.



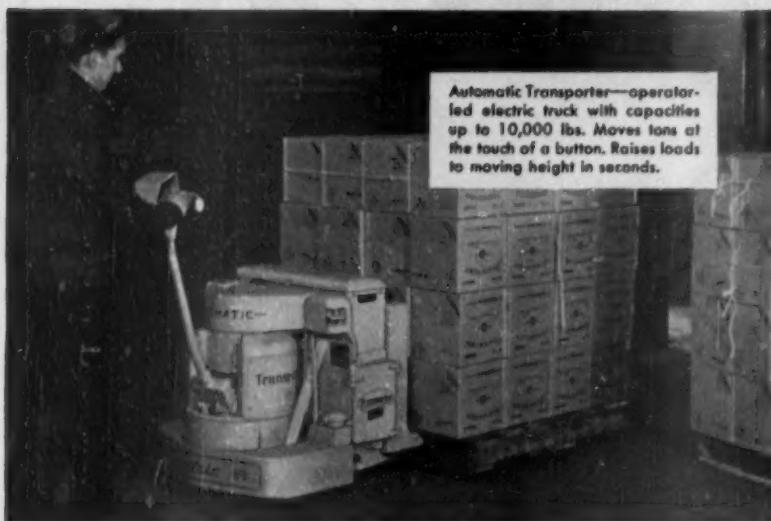
*All TWA Flights carry Air Mail,
Air Freight and in U.S.A.-Air Express*

TWA

TRANS WORLD AIRLINES
U.S.A. - EUROPE - AFRICA - ASIA



Just \$153 a day puts this Automatic truck to work in your plant!



NEW "EARN-ITS-OWN-WAY" Lease Plan speeds your materials handling without 1¢ capital investment!



Automatic BF Skylift 2000 lb. capacity with exclusive money-saving features. For trouble-free, heavy duty service.

**Liberal Plans Available on
All Automatic Trucks!**

Find out how easily you can have a plan "tailored" to your special needs. Mail the coupon today!

Automatic

WORLD'S LARGEST EXCLUSIVE BUILDER OF
ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

Now, *all* Automatic trucks can be leased as easily and simply as leasing a place of business. You get your truck complete with battery and charger, without delay and it immediately starts earning its own way, PLUS a profit for you!

And how it earns! Actual case histories on file demonstrate that Automatic savings of time, space and money, can show a sizable profit on the unbelievably low rental costs shown below.

LEASE PLAN

Model—complete with battery and charger	*Average daily cost of lease over 5 years	Average daily rental after lease expires
TRANSPORTER	\$1.53	14¢
SKYLIFT FORK TRUCK	5.43	45¢

*The average figures are based on 5 year lease term (60 months), 25 operating days per month (300 days per year).

BUDGET PAYMENT PLAN

If you'd rather own your own equipment, a modest down payment brings immediate delivery. The balance is paid off in 6 to 36 months—whatever schedule is best for you. Low monthly charges include everything... and Automatic savings can more than pay the whole bill!

Plans available in U.S.A. only.

Automatic 93 West 87th St., Dept. D4
Chicago 20, Illinois

Without obligation, please send me complete information on your new Earn-Its-Own-Way Lease Plan Budget Payment Plan
Company Name.....

By..... Title.....

Street Address.....

City..... Zone..... State.....

out the U.S. (BW-Feb. 27 '54, p138)

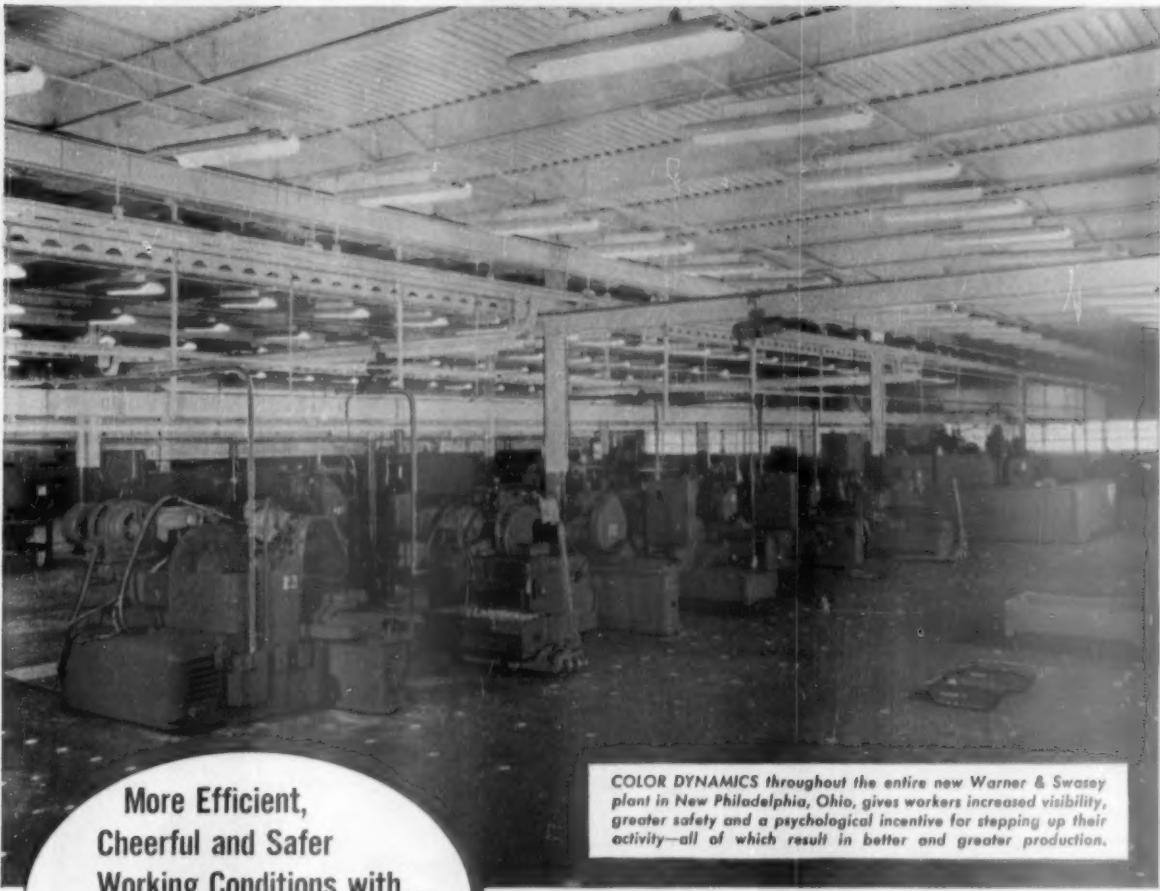
• More Trade with Russia—It's the third point that is raising the most eyebrows among Western businessmen and diplomats. For three and a half decades, Argentina has had few if any trade relations with the Soviet Union. But last year the Argentine ambassador in Moscow was reportedly one of the last Westerners to see Stalin—and there was talk of improved relations and increased trade. Then, in August, the Malenkov regime signed a trade agreement with Argentina calling for a 12-month exchange of some \$160-million worth of goods.

That government-to-government trade is currently going better than most observers anticipated. And Argentina's embassy in Moscow promises a much larger new trade deal soon. Tass, the Soviet news agency, has backstopped the prediction by proclaiming that the prospects for Argentine-Soviet trade are positively "brilliant."

That trade may yet turn out to be something less than brilliant—the Soviets can turn off the trade spigot any time it suits them, and many outsiders will be surprised to see Moscow deliver on some of the machinery contracts. But for the time business is increasing. Argentina is now shipping wool, hides, mutton, butter, pork, canned meat, lard, and linseed oil to the U.S.S.R.; the Soviets have so far delivered aviation gas, other oil products, and sheet iron. An official Argentine mission in Moscow reports it has bought \$30-million worth of Soviet machinery for its oil and coal industry, its power stations, farms, and railroads. Some of the categories of goods, incidentally, are on the West's strategic embargo list.

• Satellite Swaps—There's increasing satellite trade with Buenos Aires, too. Recently several thousand Czech tractors were unloaded in Argentina; Argentines are now looking over machinery and textile plants in Czechoslovakia and Hungary. There's a \$21-million barter deal with Poland—coal and cement in exchange for Argentine rye. The East Germans have a swap in mind, too.

• Friendly Posture—Meanwhile, despite occasional police raids on Communist centers (there was one last week), official Argentina maintains an air of polite friendship with Moscow. Not long ago an Argentine cultural mission visited the Soviet capital; two weeks ago a band of Soviet actors joined in Buenos Aires' film festival. An Argentine-Soviet chess tournament, with President Peron opening the final match, was one of the latest gestures (picture, page 150). To add to the din, there's an Argentine "Committee for the Promotion of Foreign Trade" lobbying for more Iron Curtain commerce.



More Efficient,
Cheerful and Safer
Working Conditions with...

Pittsburgh COLOR DYNAMICS®

Functional use of
colors lessens eye fatigue,
improves productivity,
boosts morale and
reduces accident hazards
in new \$3,000,000
Warner & Swasey plant.

COLOR DYNAMICS throughout the entire new Warner & Swasey plant in New Philadelphia, Ohio, gives workers increased visibility, greater safety and a psychological incentive for stepping up their activity—all of which result in better and greater production.

• An excellent example of the plant environment which Pittsburgh COLOR DYNAMICS provides in the new \$3,000,000 plant of The Warner & Swasey Company recently opened in New Philadelphia, Ohio.

• In this new plant Warner & Swasey manufactures parts for turret lathes, automatic screw and tapping machines, textile machinery and grading equipment. The entire structure was painted according to COLOR DYNAMICS.

• The reasons for the choice of COLOR DYNAMICS are best expressed by Walter K. Bailey, vice-president in charge of manufacturing:

• "We chose to use color functionally in order to create an environment that would be pleasing, cheerful and, at the

same time, improve the productivity of our operators. We selected colors that would increase visibility without causing eye fatigue.

• "We also painted recreation and rest areas in colors that would provide a welcome change of pace and return the workers to their jobs feeling alert and refreshed.

• "Above all, we wanted to create a work place of which the entire community could be proud. How well we succeeded is best shown by the enthusiastic comments when we held 'open house' at the time of our opening. This was further confirmed by the flood of applications from men who wanted to work in these surroundings. From every standpoint, we believe COLOR DYNAMICS is an investment that will pay off for years to come."

FREE—Color Engineering Study of Your Plant!

• Why not test the practical value of COLOR DYNAMICS in your plant—on a machine or two or in a whole department? Send for our free book which explains how you can use this modern painting system simply and easily.

• Better still, call your nearest Pittsburgh Plate Glass Company branch and ask to have a representative give you a detailed color engineering study of your plant, or any part of it, without cost or obligation. Or mail coupon at right.

Send For a Copy of This Book

Pittsburgh Plate Glass Co., Paint Div.
Department BW-44, Pittsburgh 22, Pa.

Please send me a FREE copy of

your booklet, "Color Dynamics."

Please have representative call
for Color Dynamics Survey without
obligation on our part.



Name _____

Street _____

City _____

County _____ State _____

Cop. 1953 Pittsburgh Plate Glass Co., Pittsburgh, Pa.



PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



DON'T STEW!

**Ask Your
LYON Dealer**

- It's so much more comfortable to get steel equipment the cool, calm, consistent way . . . from your Lyon Dealer.

He offers the world's most diversified line of quality steel equipment, as his 76-page Lyon catalog will prove. (A few of Lyon's 1500 standard items are shown below.) Equally important, he can show you how to get the most out of steel equipment in terms of saved time, space and money.

LYON METAL PRODUCTS, INC.
General Offices: 410 Monroe Ave., Aurora, Ill.
Factories in Aurora, Ill. and York, Pa.
Dealers and Branches in All Principal Cities

Lyon also has complete facilities for manufacturing special items to your specifications.

LYON

STEEL EQUIPMENT

for **BUSINESS • INDUSTRY • INSTITUTIONS**
STEEL KITCHENS for THE HOME



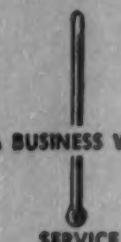
A PARTIAL LIST OF LYON STANDARD PRODUCTS

• Shelving	• Kitchen Cabinets	• Tool Trolleys	• Economy Locker Racks	• Display Equipment	• Filing Cabinets	• Service Carts	• Tool Stands
• Lockers	• Cabinet Benches	• Bar Racks	• New Freedom Kitchens	• Flat Drawer Files	• Folding Chairs	• Sorting Files	• Shop Boxes
• Stools	• Storage Cabinets	• Tool Boxes	• Toolroom Equipment	• Revolving Bins	• Work Benches	• Drawer Units	• Tool Trays
• Bin Units	• Drawing Tables	• Parts Cases	• Wood Working Benches	• Hanging Cabinets	• Bench Drawers	• Hopper Bins	• Shop Desks

INTERNATIONAL OUTLOOK

BUSINESS WEEK

APR. 10, 1954



The H-bomb (page 25) may change the whole course of world affairs.

Power relationships between East and West, and between the U.S. and its allies, are sure to be affected. So, too, are traditional diplomatic methods.

But changes like these don't come overnight. For a while at least the world will operate pretty much by the old rules.

For diplomatic firmness and finesse, on the traditional pattern, you will go far to find anything to match Secretary of State Dulles' recent handling of the Indo-China business. Here's the story:

About a month ago the Communists went out for the kill at Dienbienphu. They aimed for a victory that would force France to seek separate truce talks before Geneva, thus torpedo the conference in advance. On top of that they hoped to wreck the European Defense Community for good and all.

But Dulles accepted the challenge. On the one hand, he got enough military help to the French so they are still holding out at Dienbienphu. On the other, he warned the Communists that the U.S. would move in rather than let Indo-China go Red. Then he called on Britain, France, Australia, New Zealand, Thailand, and the Philippines to join the U.S. in a solemn warning against direct intervention by Red China. And all these moves Dulles sold to the U.S. Congress.

With this bold diplomacy, Dulles may well be able to:

- Forestall any separate truce talks between Paris and Ho-Chi-Minh.
- Strengthen the Western front in preparation for Geneva. (Note that to satisfy the British, Dulles didn't include Formosa in his call for joint action.)
- Prevent a French military collapse in Indo-China. Even if the Reds take Dienbienphu, which doesn't seem likely, the French won't fold in Indo-China.

Make Moscow and Peking realize that we mean business in Southeast Asia. The proposal Molotov made this week for a Far Eastern security pact shows that Dulles has grabbed the initiative in that area.

—•—

De Gaulle has thrown down the gauntlet to the Laniel government. He is aiming to be France's new "Man on Horseback," save the country with strong-arm leadership.

This was the main burden of a statement De Gaulle made this week in Paris, his first public appearance in many months. De Gaulle had some other things to say.

He promised to make France the mediator between the U.S. and Russia, thus save civilization.

In addition, he took a couple of cracks at U.S. policy. First, he turned thumbs down on EDC so firmly that it's hard to see how any French government can ever get a majority for this plan. Then he warned that France would never give up military leadership in Indo-China, regardless of what help the U.S. gave France there.

You can't take De Gaulle's bid for power lightly.

For one thing Frenchmen are in a mood for almost any change that promises strong leadership and a way out of the present political confusion.

INTERNATIONAL OUTLOOK (Continued)

BUSINESS WEEK

APR. 10, 1954

For another, De Gaulle has just recruited two very strong allies:

Marshal Juin, who has split with Premier Laniel over EDC. If Juin sticks, De Gaulle can count on powerful backing from the French Army.

Antoine Pinay, a former premier who had great success with his "save the franc" program. It was Pinay who brought De Gaulle and Juin together. He can offer the Gaullist movement strong business backing plus financial help.

It will be interesting to see how the French Communists react to De Gaulle's moves.

The Reds are sure to go along with his opposition to EDC and every other anti-U.S. stand he takes.

But they run a serious risk if they help De Gaulle to power. Once in office he might crack down on them—unless first they can make a deal whereby (1) the Communist-dominated trade unions guarantee French industry labor peace; and (2) De Gaulle promises to pull out of the Western alliance, put France in a neutral position.

—•—

This was budget week in Britain and Canada. In both budget messages you caught a note of business optimism for 1954.

Not that businessmen—especially Britons—were especially pleased over budget plans. British Chancellor Richard A. Butler saw no need for the tax cuts that business had hoped for, felt Britain was prosperous enough to "carry on" as is (page 136).

Nor did Canadian Finance Minister Douglas Abbott grant cuts in corporation and personal income taxes, in spite of increased unemployment, now about 6% of Canada's labor force. The one concession was a \$36-million cut in excise and sales taxes.

Both finance men, you may be sure, had their fingers crossed as to pace of U.S. business. If our recession should deepen and become contagious, both London and Ottawa will take another look at their plans.

—•—

Like Britain, Canada in 1953 racked up the most prosperous year in its history. Only farmers, hurt by shrinking export markets, didn't share in the bonanza.

Abbott, reviewing the eighth successive year of budget surpluses, announced gross national product at \$24.3-billion, up \$1-billion from 1952. He figures that despite the current leveling-off of the Canadian economy, 1954 should do at least as well. It's significant that capital spending plans suggest a 3% increase over 1953's record level.

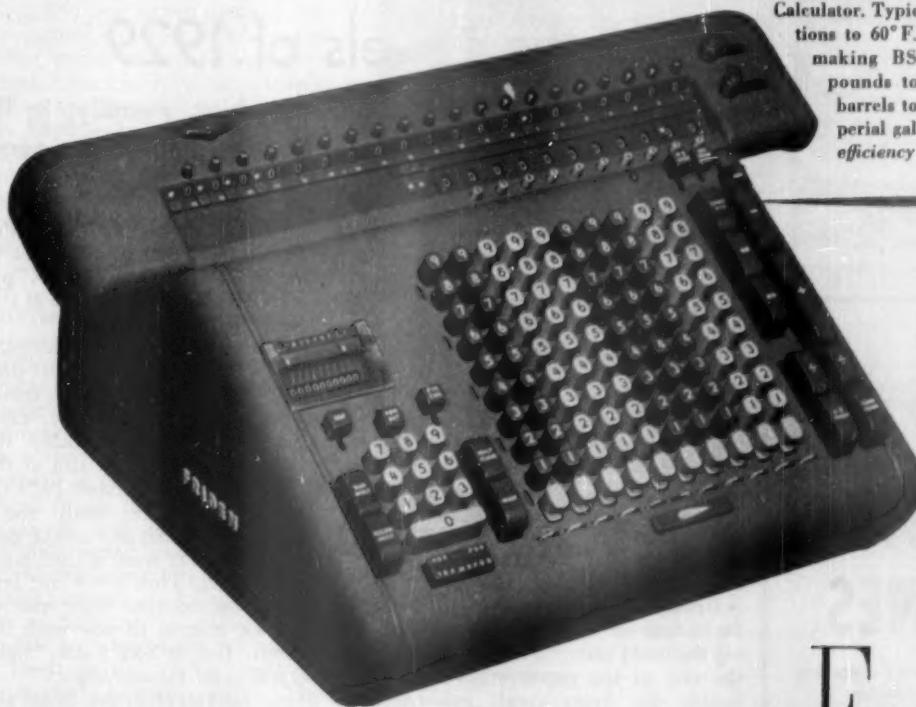
Canadian exports may be a soft spot, though. In January and February they were off 9% from the same period last year.

Keep an eye on the Canadian dollar. Its premium over U.S. currency has dwindled from 3.8¢ at the end of February to a shade over 2¢ at midweek. It's likely to dip further.

Canada's trade deficit may be a factor in the decline. And some Canadians expect that the flow of U.S. investment money into Canada, main prop of the dollar last year, may not be so strong in coming months.

Who's cutting costs with Friden figure-thinking?

Everywhere in business you find Fridens. Because the Friden performs more steps in figure-work *without operator decisions* than any other calculating machine ever developed. Each automatic Friden decision reduces business overhead costs by saving human time. It's likely your business can't afford NOT to own a Friden. See what you think when you see the Friden figure-think. Call in your nearby Friden Man and watch a demonstration! Friden sales, instruction and service available throughout the U.S. and the world. **FRIDEN CALCULATING MACHINE CO., INC.**, San Leandro, California.



The Thinking Machine of American Business

© Friden Calculating Machine Co., Inc.



Motor Freight companies . . . maintain hour-by-hour control of costs with the fully automatic Friden Calculator. Exclusive decision-making Friden features speed prorating of freight charges and the figuring of tariff computation, bills of lading, loading performance, payrolls. *Specialized or complex figuring is easy on the Friden!*



Banks . . . compute savings account interest swiftly and with unvarying accuracy on the fully automatic Friden Calculator, also figure average daily balances, foreign exchange, average daily float, amortization, account costs, interest on notes, mortgages, small loans, etc. *No special operator training is needed on the Friden!*



Petroleum Refineries . . . pace and regulate operations with the fully automatic Friden Calculator. Typical Friden jobs: Volume reductions to 60° F. using new ASTM-IP factors; making BS&W deductions; converting pounds to gallons, gallons to barrels, barrels to long tons, U.S. gallons to Imperial gallons. *The Friden is vital to top efficiency in all industry, all business!*

Friden builds calculators in a wide price range, in every size, for every figuring need

Friden

aristocrat of shoes...

Foot-Joy
"The Shoe that's Different"
BY FIELD AND FLINT CO.



6014—Natural
grain calf
\$24.95

In Boston, Foot-Joy Shop
In Chicago, Al Robbins • In Los Angeles, Biangy's
In New York, Foot-Joy Shop, 417 Madison Ave.

write for free booklet
FIELD AND FLINT CO., Brockton 66, Mass.

DON'T BUY Lease YOUR TRUCKS

From experienced NTLS suppliers
of "All-Service" leasing

National TRUCK LEASING SYSTEM

Ask our best boosters—NTLS customers! Locate
our operating company in your area by this
trade mark in the phone book. To learn how
truckleasing releases capital,
gives you a perfectly main-
tained fleet engineered for your
use — everything supplied but
the driver — write for directory
of NTLS leasing companies and
brochure.

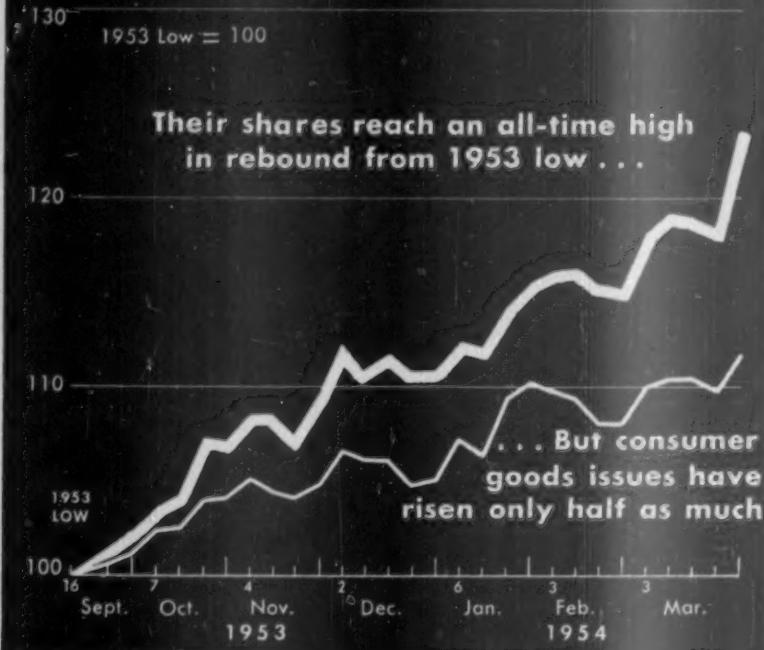
NTLS
Dept. B-4 28 E. Jackson Blvd., Chicago 4, Ill.
We'll have your
present fleet!

Elliott ADDRESSING MACHINES

offer you the only competition you can find
in the Addressing Machine industry.
Consult your yellow telephone book or write
to The Elliott Addressing Machine Co.,
151B Albany St., Cambridge 39, Mass.

THE MARKETS

Investors Favor Heavy Industries



BUSINESS WEEK

Up to the Levels of 1929

Capital goods stocks are climbing steadily, in the face of a continuing business recession. Consumer goods shares can't keep up, but they're still doing fine.

You never can tell about the stock market. Despite the continuing drop in business activity, and despite the dark mutterings of the bears, the market's prices are still moving up. For this, as the chart shows, heavy industry shares can claim a good deal of the credit.

It has been definitely a capital shares market. Standard & Poor's index of capital goods shares has risen 23.1% from the 1953 low it recorded last September. It now stands at the highest level in its history—topping even the peak of 1929. The consumer goods stocks have risen only 11.6%.

• **Reasons**—You don't have to search far to find out why investors are favoring the heavy industries. For one thing, the end of the excess-profits tax will benefit the heavy goods industries—which in general have paid heavy EPT bills—more than the consumer goods industries. For another, competition is getting painfully sharp in many areas

of the consumer goods business. Price cutting at the retail counter will undoubtedly chip at manufacturers' profits—and that, in turn, will chip at stock dividends.

Despite this gray prospect for future earnings, the consumer goods shares are still making friends in the market. They're lagging behind the capital shares, and they're 9.3% below their 1929 peak. But they are still at their highest point since October 1929.

• **The Faithful**—The steady rise of both consumer goods and capital goods shares leads many men in the market to feel bullish. True, there are bears; and there are one-time bulls who now prefer cash reserves to new stock commitments. But, as S&P's says, "bullish sentiment is on the ascendancy."

Many market observers think stock prices may edge even higher over the coming weeks. They point out that a fair volume of potential buying has been held back during the past few

weeks by both individual and institutional investors. If no downward reaction develops, they believe some of this money will move into the market.

And those who still have faith in the market as a business prophet advance an even happier theory. These analysts feel that the steady rise of stock prices may signal a new, and equally steady, rise of business activity. They point out that the market declined sharply last summer. If you agree that the decline presaged the current recession, why not agree that the market's current climb presages a new boom?

• **Winners**—The poorest performers in the stock market last week were flour milling, tobacco, vegetable oil, fire insurance, glass container, rayon and acetate yarn, meat packing, apparel chain, anthracite, bituminous coal, leather, sugar refining, and corn refining shares—yet none of these groups showed a decline of as much as 2% under the preceding week.

Best-acting shares for the most part were the same groups that have been leading the advance for some time now. The office equipment shares, for instance, chalked up a rise over the preceding week of 9.8%; the aircraft manufacturing group was also up, 7.3%; machine tools, 6.8%; electrical equipment, 5.9%; and movie stocks, 5.1%.

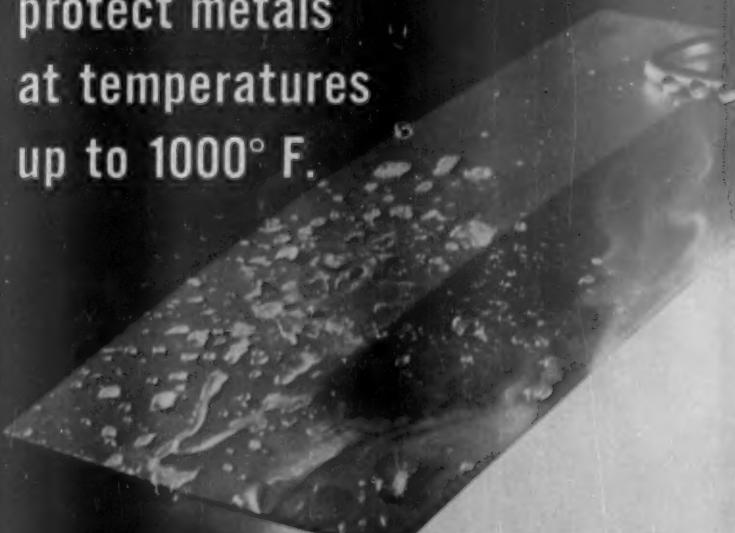
Up sharply, too, were several groups that had earlier been depressed. Zinc and lead shares rose 9.3%, for example; and the coppers rose 5.7%.

• **The Experts**—Among the big companies that prepare market statistics, there's no current evidence of any rampant bullishness.

For example, Standard & Poor's is not at all sure that last week's vim and vigor will last. Says S&P's: "When bullish sentiment is in the ascendancy, as is the case at present, the tendency of the investing public is to become increasingly optimistic. The momentum thus gained quite often carries that market forward until it becomes seriously over-bought and vulnerable to any chance adverse development. What the pattern will be on the present occasion is difficult to say, but it is obvious that the risks in new buying are much greater than several months ago."

And Moody's Investors Service adds: "Yields on stock are falling, and values are no longer as reasonable as they were. But we would keep the bulk of stock funds in the market, predominantly in stocks of strong quality. The market is showing signs of some pickup in speculative activity, but downgrading should be avoided. We would continue to hold a moderate buying reserve."

Dow Corning Silicones protect metals at temperatures up to 1000° F.



Silicone aluminum paint on left half of steel panel is unaffected by heat and moisture while organic aluminum on right half has peeled permitting metal to rust.

With properties midway between those of vitreous enamels and the best organic finishes, silicone coatings are relatively inexpensive, easily applied and indifferent to the kind of temperatures and corrosive conditions that ruin conventional paints in short order.

For example: aluminum pigmented silicone paint shows no deterioration after four years of service on a cyclone furnace operating at temperatures from 70° to 1400° F. Aluminum pigmented organic paints lasted only a few hours.

In the pharmaceutical industry a straight silicone aluminum finish on racks used to sterilize antibiotics shows no indication of peeling after

150 hours; organic aluminum finishes started to peel, permitting rust to form, after 9 to 15 hours.

Other recently developed silicone-based finishes now available include air drying silicone-alkyd exterior paints with greater resistance to weathering; nonyellowing baking enamels which retain their original color and gloss after prolonged service at 400° F.; silicone-phenolics for nonchalking, nonfading maintenance paints and spar varnishes.

Stimulate sales with longer lasting, more attractive finishes. Cut the cost of repainting hot metal surfaces. Investigate protective coatings made with Dow Corning Silicones.

Mail This  Coupon Today

DOW CORNING CORPORATION, DEPT. E-16, Midland, Michigan

Please send me

Data Sheet on Silicone-Based Protective Coatings
 List of Formulators
 Tell Tales and Fabulous Facts about Silicone Products

Name _____

Address _____

City _____

first in
silicones

DOW CORNING
CORPORATION

MIDLAND, MICHIGAN

ATLANTA • CHICAGO • CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEW YORK • WASHINGTON, D.C.
(Silver Spring, MD.)
Canada: DOW CORNING SILICONES LTD., TORONTO • England: MIDLAND SILICONES LTD., LONDON • France: ST. GOBAIN, PARIS

LABOR



1 AFL longshoremen picked for toughness clamber into trucks to go through picket lines, manned for 29 days by the racket-ridden International Longshoremen's Assn.



Strong police action helped AFL longshoremen break a paralyzing 29-day strike on New York docks; but ILA's rout was due just as much to a federal-state legal assault.



2 AFL's police-convoyed trucks roll out. Destination: Hudson River Pier 84, where,



4 Mounted officers herd potential ILA troublemakers safely back from the

ILA Strike

One day last week AFL longshore gangs, under heavy police protection, began to work the liner *Vulcania*, at the American Export Line's strike-bound Pier 84 (pictures).

The move was the first invasion in years of the domain ruled by the notorious "pistol local" of the International Longshoremen's Assn. and it was the blow that broke the ILA's 29-day strike that had tied up the New York waterfront. Two days later the strike was over.

Four other shipping lines use "pistol local" piers, but only American Export was willing to test the long-touted invincibility of the old ILA local. United



the word is, gangs from an ILA "pistol local" are threatening trouble.



3 There's little violence as the trucks move AFL longshoremen into Pier 84, where the liner Vulcania awaits unloading. Police keep sullen ILA men in check.



pier entrance, on the alert for any move to rush the pier in an effort to oust AFL longshoremen as they settle down to work.



5 AFL's success on Pier 84 could be duplicated elsewhere; that and NLRB pressure led ILA to end its strike.

Broken, but Dock Peace Is Uneasy

States Lines, Cunard, French Line, and Furness all refused to try to work.

• **Milestone**—But American Export did dare. The AFL men went to work—and the death knell had sounded for the strike. A year from now, looking back, the working of Pier 84 may be seen as a milestone in the loosening of mob control over the port's labor.

The buffeted and beset ILA—expelled by the AFL for corruption, characterized by state authorities as racketeer-controlled—had lost a walkout as disastrous as any in recent labor history.

The ILA had won nothing by its strike. The walkout, called originally

to pressure the NLRB into certifying ILA as bargaining agent for the port, had ended with the union no closer to that goal. The NLRB invalidated a December election in which the ILA polled a majority of unchallenged ballots. Further, the NLRB warned the ILA it would be off the ballot in any new election if it persisted in a line of conduct, of which the strike was part, designed to "thwart" the processes of the board.

• **Face Saving**—On the last day of the strike, the ILA sought frantically to save some face. It tried to make a deal with NLRB and Justice Dept. attorneys: It would end the strike if

criminal contempt charges against its leaders were dropped. It got a cold rejection.

It tried to make a deal with the Bi-State Waterfront Commission, the agency created by the states of New York and New Jersey to clean up the waterfront: It would end the strike if the commission restored working privileges to a number of longshoremen it had banned during the strike for illegal or violent behavior. The commission not only refused but rubbed salt in the wound by suggesting it probably would be banning more.

Finally, the ILA told NLRB's regional director it would end the strike

New... New... New... New...



CLARK EQUIPMENT COMPANY presents the **MICHIGAN Series "24"**

Model T-24 Truck, 6 x 4 and 6 x 6; Model C-24 Crawler
Shovel, Clamshell, Crane, Dragline, Hoe

14 Reasons Why—the MICHIGAN Series "24" Is Your Best Buy in '54

Full Vision Cab—new, stylized; all-around and overhead vision—3604 sq. in. glass; comfortable, quiet

Air Controls—clutches actuated by famous MICHIGAN Air Controls

Power Clutches—single plate, double-disc, multiple-segment—air operated

Primary Drive—power transmitted through two sets spiral bevel gears running in oil

Shafts and Drums—hoist and crowd drums ball bearing-mounted on splined alloy steel anti-friction bearing-mounted shafts

Swing Brake—air operated; standard equipment

Circle Gear Casting—large diameter double-flange one-piece steel casting

Hook Rollers—six 7½" diameter, tapered, adjustable; ball-bearing mounted

Cast Turntable—machinery deck

with boom hinge pin bracket and hook roller-brackets—single steel casting

Big Brakes—powerful hoist and crowd brakes, 30" diameter

Worm Gear Boom Hoist—independent high speed hoist with automatic safety brake—standard

Removable Counterweight—power-handled for easy, quick removal or assembly

Truck Chassis—heavy duty; big engine, transmission, axles; deep section alloy steel frame, cross-braced, welded; rear and center outriggers standard

Crawler Base—one-piece cast steel carbody and circle gear; spring loaded safety brakes; 24" tracks standard

You'll find the MICHIGAN Fact-Folio handy and helpful; contains full specifications, an interesting book "Get More Yardage Through Air Power," and numerous action photos. The coupon will bring yours promptly.

*Trademark of Clark Equipment Company

**CLARK
EQUIPMENT**

CLARK EQUIPMENT COMPANY
Construction Machinery Division
470 Second Street, Benton Harbor, Michigan
Please send the MICHIGAN "24" Fact-Folio

Firm _____

Title _____

Address _____

City _____

Zone _____ State _____

if he gave it assurance that there would be a quick new election to decide whether the ILA or its AFL rival would represent longshoremen in the port. Again the answer was no. Without even a tattered shred of achievement to claim for its strike, the ILA then capitulated.

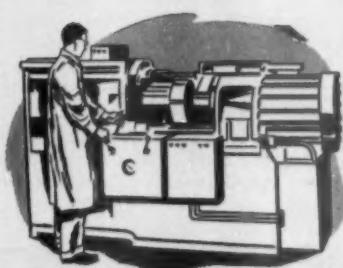
• **Factors**—What licked the ILA, however, was only partly the joint federal-state legal assault, which produced more injunctions, restraining orders, indictments, and subpoenas than any other labor dispute ever developed. Of at least equal importance in the rout were two factors not uncommon to other, more orthodox, strikes.

The first was the gradual, but perceptible, return-to-work movement directed by the rival AFL union. Each day the strike dragged on, more and more men were back on the job, more and more piers were at work. On the last day of the strike, over 5,000 longshoremen, plus almost 1,000 other workers at waterfront trades, were on most of the piers that employers wanted to work. The working of Pier 84 was the climax.

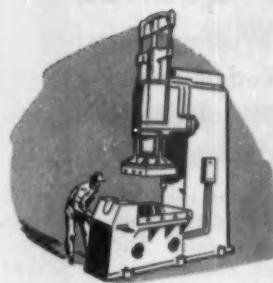
The second factor eating away at the ILA's strike strength was the privation it caused some 20,000 dock workers. Few of them have financial reserves, not many found other jobs to keep them going during the strike. The old ILA had no money with which to take care of hardship cases. When it became apparent that the strike was getting absolutely nowhere, the rank-and-file muted a reckless leadership that would have driven the port to ruin rather than abandon its fight for existence.

• **Trouble Ahead**—With the strike over, the port is operating under a tenuous truce as it whittles down the accumulated backlog of cargo. Looming ahead is another NLRB election in which the old ILA faces the AFL on the ballot. Whatever the result of that poll, the minority union will not gracefully accept defeat. For the old ILA leaders with underworld connections there is power and booty at stake. For the AFL, which has poured energy and resources into the fight, a vital issue, as well as prestige, is involved. Unless it can kick out a corrupt union and put another one in its place, its effort at self-reform is doomed. All the unsavory elements in the federation will be emboldened and the reform group led by George Meany, AFL president, will be disarmed.

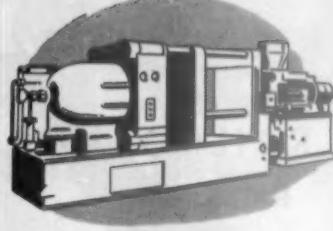
Under these circumstances a pier-by-pier struggle with no holds barred can be expected to determine finally the question of whether the ILA or the AFL operates on the New York waterfront. The end of the longest strike in the port's history only defers the violent overtones that such a struggle will inevitably develop.



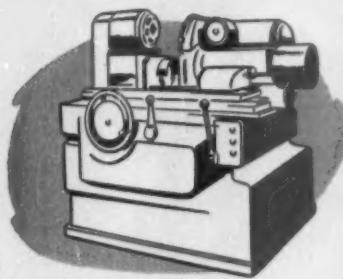
For hydraulic systems on all types of injection molding machinery.



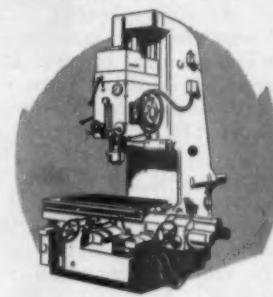
For hydraulic systems on all types of presses and forging hammers.



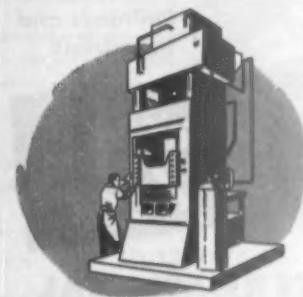
For hydraulic systems on all types of plastics molding equipment.



For hydraulic systems on grinding machines and other production tools.



For hydraulic systems on jig borers and other metalworking machinery.



For hydraulic systems on standard and special heavy-duty forming presses.

For Every System, a Sun Hydraulic Oil to Give Top Performance and Economy

Sun makes a variety of hydraulic oils, because *no single oil will meet all combinations of conditions economically*. Among the many hydraulic oils made by Sun the following cost-cutting products are typical.

SUNTAC OILS. Designed to cut leakage. They reduce it an average of 35%—and results are immediate. But they wouldn't be economical in a tight system.

SUNVIS H.D. 700 OILS. Clean dirty systems in 50 hours or less without loss of production. But they wouldn't be economical in systems that leak badly.

NEW SOLNUS OILS. Resist oxidation, prevent rusting and corrosion. They are low in cost and have long service life. But they wouldn't be economical in systems where excessive contamination is a problem.

Among the many different hydraulic oils made by Sun, there's one that's best for your system—a hydraulic oil that will give top performance at lowest possible cost. Consult your local Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. BW-4

**INDUSTRIAL PRODUCTS DEPARTMENT
SUN OIL COMPANY**

PHILADELPHIA 3, PA. • SUN OIL COMPANY LTD., TORONTO & MONTREAL
Refiners of the famous Blue Sunoco Gasoline and Dynalube Motor Oils



NO CAPITAL INVESTMENT
Required To Secure

RAILROAD ROLLING STOCK

Money-Saving Financing for Railroads and Industrials

Morrison Plan
A SERVICE OF
INTERNATIONAL RAILWAY CAR Co.
General Offices - Buffalo, N. Y.

IUE Quandary

Westinghouse firings put anti-Red union in the unhappy position of defending two alleged Communists.

The International Union of Electrical Workers (CIO) has a discomforting problem to face. The union, strongly anti-Red, must defend the jobs of two alleged Communists, or risk losing a big bloc of workers to the rival, left-wing United Electrical Workers.

Last week, Westinghouse Electric Corp.-fed up with the "disturbing influence" of two employees long associated with leftwing activities-fired them. The dismissal occurred at the company's East Pittsburgh plant, where leftwing UE already has some support and is looking for new chances to challenge IUE. IUE, on the other hand, is engaged in what it hopes will be its last big campaign against UE. It has had major successes at Schenectady (BW-Mar. 20 '54, p57), and since that time in other major manufacturing centers.

Westinghouse's move jolted IUE, even though the company assured the union that the firings set no precedent or policy, such as that announced recently by General Electric Co.

Despite Westinghouse's assurance that its dismissal order "established no policy," the union immediately announced that it is "troubled" by the decision to fire the men, and would file grievances in their behalf.

• **Figures**-A lot of IUE's concern stems from the fact that the two men fired—Thomas J. Fitzpatrick and Frank Panzino—were key leaders in the leftist UE when it was top dog at the East Pittsburgh plant, and that the two still have strong backing among union members.

Anything less than a full-scale fight by IUE for the men could alienate their supporters, possibly lead to a move to shift the local back into UE. At the same time, IUE is up against the fact that a few weeks ago the Pennsylvania state CIO convention refused to seat Fitzpatrick as a delegate because of his leftwing record.

• **Record**-Matt Cvetic, undercover agent for the FBI, named Fitzpatrick, a babbitter, as a member of the "electrical commission" set up by the Communists. Several others backed up this sworn testimony. Fitzpatrick's own brother, Michael, called him "the mouthpiece of the Communist Party in Pittsburgh."

Witnesses before the congressional committee described Panzino, operator of a bending machine, as a loyal and conscientious Communist.

Both men invoked their rights under the Fifth Amendment to avoid answering committee questions about Communist membership. However, Fitzpatrick later signed a statement required by the East Pittsburgh IUE local, denying that he was a Communist, so that he could seek election as a delegate to the Pennsylvania CIO convention. He won in the local, but the convention refused to recognize Fitzpatrick as a delegate.



MAURICE TRAVIS, leftwing union chief, faces grilling as NLRB puts . . .

Oaths on the Carpet

The National Labor Relations Board last week won the right to look into non-Communist oaths filed with it by Maurice Travis, secretary-treasurer of the leftwing Mine, Mill & Smelter Workers. The U.S. District Court in Washington dismissed MMSW complaints that NLRB overstepped its authority in summoning Travis before it on the oath issue.

It was NLRB's first court victory in its new effort to police affidavits required annually from union officers under the Taft-Hartley act. Two previous efforts were blocked in lower federal courts, and are now under review by the Supreme Court.

Charges filed with NLRB by Precision Scientific Co., of Chicago, alleged that Travis filed a non-Communist affidavit in 1949, then wrote in MMSW's newspaper that although he did so he still believed in the Communist Party and its principles. NLRB called Travis to account, announcing that if the charge sticks it will withdraw MMSW's certifications—leaving it open to raids by the United Steelworkers (CIO) and other unions.

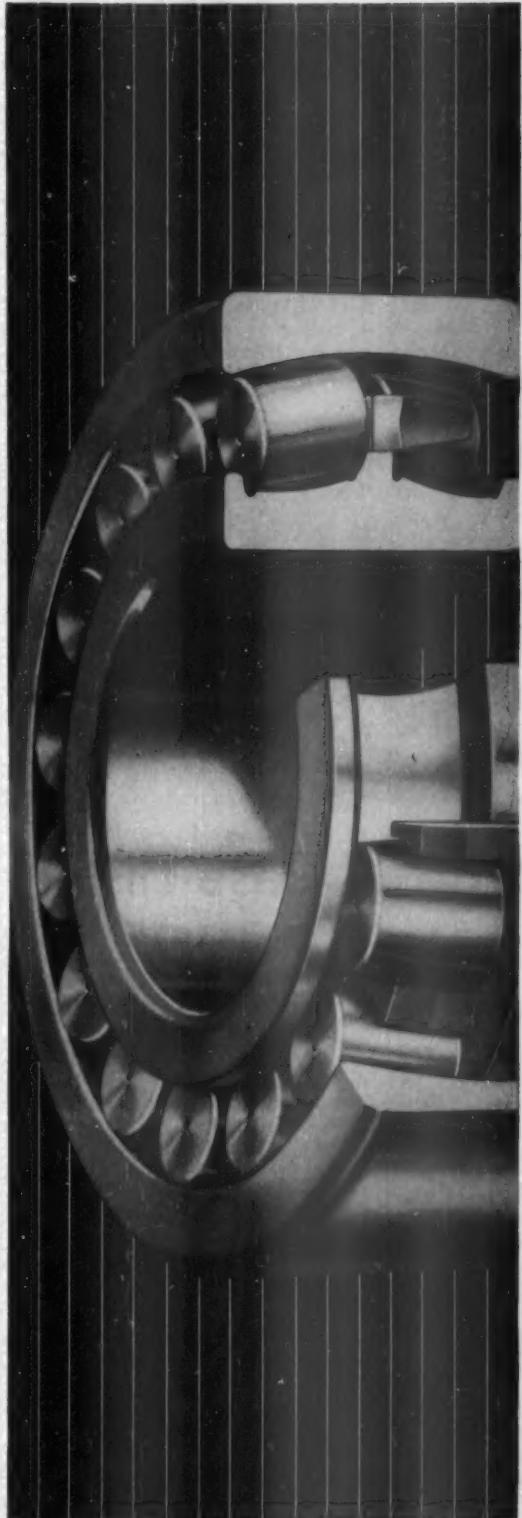
That isn't likely to happen soon, since MMSW plans to appeal.

The most convenient location in New York

On the smart East Side, with theatres, fine shops and other attractions nearby.

HOTEL *New Weston*
A Knott Hotel

MADISON AT 30th • NEW YORK 22, N. Y.
JAMES T. McTIGHE, Manager



why it pays to specify

TORRINGTON

Spherical Roller Bearings

Uniform, close control of precision-ground contact surfaces—for even load distribution and maximum bearing life.



Accurate geometrical conformity between races and rollers—for ultimate load carrying capacity and performance.



Races and rollers heat treated according to the most advanced metallurgical procedures—for maximum durability.



Individual one-piece cage for each path of rollers—assures freedom of operation.



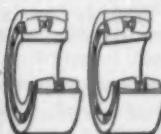
Integral flange on inner race—to give radial stability and positioning for thrust loads—both essential to satisfactory performance.



Self-aligning—for continuous, free-rolling service under shock loads and at sustained speeds.



Unit assembly—for easy, economical handling.



Available from stock with either straight or tapered bore—for shaft or adapter mounting.

These are advantages that give you long, efficient, low-maintenance service in the toughest heavy-duty application. To get maximum value for your bearing dollar, specify TORRINGTON Spherical Roller Bearings.

THE TORRINGTON COMPANY[®]

South Bend 21, Ind. • Torrington, Conn.

TORRINGTON SPHERICAL ROLLER BEARINGS

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

First Round in '54 Annual Wage

The long-predicted 1954 battle for a guaranteed annual wage got under way last week. The International Union of Electrical Workers (CIO) fired the first shot when it asked Westinghouse Electric Corp. to guarantee all employees with a year's seniority a minimum of 2,080 hours of pay annually. IUE called on the corporation to put 5% of payroll into a fund to finance guaranteed pay.

• **First Up**—The demand on Westinghouse will be followed almost immediately by a similar demand by IUE on General Electric Co. IUE's contracts with the two key employers in the industry run out this midyear.

IUE's President James B. Carey announced that the union is "going to get the guaranteed annual wage. We think we're going to get it in 1954." However, he conceded that IUE might accept some modification of its plan.

The union's demand for 2,080 hours of pay annually included at least 48 weeks of 40 hours. Under this arrangement, only 160 overtime hours a year could be counted against the total 2,080-hour pay guarantee.

The union stipulates that if an employee is laid off, he must apply immediately to the nearest unemployment compensation office for work and jobless pay. If suitable work is offered, he must take it. If he gets unemployment compensation, the guaranteed payment by his old employer is reduced by the amount of the benefits.

• **The Plan**—IUE specifies that no payments would be made for layoff occurring before employer contributions had accumulated for 52 weeks. Any time the total fund equals 10 weeks' pay for all employees, the employer could reduce contributions to a percentage sufficient to maintain the 10-week level. The employer would never be liable beyond the 5% no matter how serious the drain on the fund. And to guard against depletion by payments to low-seniority employees—always first to be laid off—IUE wants the fund administered in three separate parts—one for employees with less than three years' seniority; one for those with three to five years' seniority; and one for those on the payroll more than five years.

In addition to an annual wage, IUE wants a wage increase—and "not . . . a 4¢ proposition"; raised pension, health, insurance benefits; fringe gains.

Despite Carey's insistence that IUE "means business this year" there is strong doubt that the electrical workers will press the annual wage demand to the point of striking for it.

• **Then Who?**—If IUE pigeonholes the demand, pressing instead for pension,

health, and insurance gains, then who—if anybody—will make an issue of it?

The international executive board of the United Steelworkers (CIO) discussed the union's proposed guaranteed-wage demand on basic steel in Pittsburgh this week, announced that it is "in earnest."

But two things may keep USW from building up real steam under the demand. Again like IUE, USW feels that its pension and insurance plans need overhauling—meaning increases—and that its wages should be lifted. That doesn't leave much room for an annual wage in a probably moderate settlement.

Moreover, economic conditions are an increasing worry for USW. With an estimated 15% of its members idle (some estimates run as high as 20%) USW might find a rank-and-file reluctance to "hit the bricks" for a wage guarantee dragging back its plan.

Other unions in CIO and AFL have also been planning annual-wage demands, largely along the same lines as IUE. With one exception, none seems immediately important.

The exception is an annual-wage plan being prepared, under wraps, by

the United Rubber Workers (CIO). URW's policymaking executive board recently O.K.'d an annual-wage demand for this year's bargaining with two of the big four companies. The rubber union demand may turn out to be a real one for two reasons: The union already has pension and insurance benefits about equal to those sought this year by IUE, USW, and other CIO unions; and its bargaining position—it can put the pressure on two firms while competitors are for the time being free of it—is perhaps the most strategic of any major union this year.

• **"Dead Serious"**—Meanwhile, Walter Reuther, head of the United Auto Workers and of CIO, reaffirmed this week that the auto union is "dead serious" about its annual-wage demand for 1955 bargaining. UAW formally unveiled its planned demand at an educational conference in Chicago's Civic Opera House late this week. Officers told 2,500 delegates representing 1.35-million auto unionists that the year-early presentation of the demand is "in the hope that the strife that needlessly accompanied other major advances . . . toward a better life may be avoided when guaranteed plans are negotiated."

Annual Wage: A Case History

"In the last month, Geo. A. Hormel & Co. felt the first strain of the annual wage since 1934."

That's what Hormel reported to its employees in the March issue of the company's news magazine Squeal. The statement is currently attracting a lot of attention in management offices throughout the country. With the annual wage such a hot subject, every scrap of news connected with it gets around—particularly if Hormel is involved.

• **Questions**—For two decades, the Minnesota meat packer's annual-wage plan has been a model to be watched—and in a very few instances followed—by other employers. Most consider it an interesting and generally successful experiment. Because they do, the news of "strain" caused by Hormel's annual wage brought quick questions:

• Just what is happening under Hormel's annual-wage program as a result of the "strain" reported?

• What does the "strain" mean for the future of the Hormel plan?

• And what—if anything—can other employers learn from Hormel's present experiences?

• **Hogs**—Hormel is not seriously worried, despite "trying circumstances" over

the past two months similar to those in 1934. In that year, drought conditions over a large area of the Midwest cut down the number of animals available for slaughter and processing.

This time, too, it's a shortage of animals that is behind Hormel's problems and the strain on the annual wage. Farmers reduced their hog production by 25% or so—because, Hormel said, the government's support price on corn led to "a practical temptation" to take a profit on corn rather than risk feeding it to hogs at a time when hog prices are shaky. Whatever the cause, Hormel couldn't buy enough hogs.

Hormel's packinghouses depend largely on hogs for full-scale operation. When they are in short supply, work falls off not only in Kill and Cut but also in Sweet Pickle, Smoke House, Boning, and other departments.

• **Employees**—During much of the two-month period of hog shortages, Hormel reports, it "would have been possible to get the work of the packinghouse done . . . with 1,000 fewer persons." Facing this same problem, other packers laid off employees; Hormel noted that if it had not been for its annual-wage plan "there is little doubt" it would have done the same.

Hormel's annual-wage plan obligates the company to pay a man for 52 weeks of work—regardless of how many hours he actually works a week. To do this, Hormel:

- Bought hogs at "prices higher than the hogs warrant" in order to furnish as much work as possible.

- Shifted workers from departments with little work to those able to use additional help; the cattle department, able to get plenty of cattle, was working steadily and could absorb some workers—but by no means enough of them to ease Hormel's problems.

- Worked the departments handling hogs as much as possible, then closed them down for the day or week—paying the full 38-hour wage.

- Payout—The net result was this: With one hand Hormel was paying too much for hogs in order to provide work; with the other it was "meeting the weekly payroll for several thousand people as if they had worked a normal work week—when perhaps a third had not." That was the strain.

- Compensations—But in the eyes of the company the strain is something temporary; by the end of the year, the money loss involved in 38-hour pay for short weeks may be made up entirely. Under Hormel's plan, employees make up the difference between hours actually worked and hours paid for when there are more than 38 hours of work.

- Safety Valves—if Hormel's plan did not include this provision and the one permitting shift of workers between departments, the company says, it would sooner or later "run out of something with which to meet the payroll." But these two safety valves do function, according to Hormel, to "reduce as much as possible the strain of pay without hours worked, a strain that is bound to arise from time to time."

The Pictures—Brookhaven National Laboratory—86 (top), 86 (bot. rt.); Harry Compton—160, 161 (top); Don Cravens—178; Harris & Ewing—31 (bot. ctr.), 51; Humble Oil & Refining Co.—68 (top lt.), 69 (top); Information Div. Radiation Laboratory of the University of California—86 (bot. lt.); I.N.P.—30 (3rd from top), 30 (bot.), 161 (bot.); Herb Kratovil—41, 42, 160, 161 (top), 186; McGraw-Hill World News—150; National Union Radio Corp.—82; Shell Oil Co.—68 (top rt.); Standard Oil Development Co.—80; U.P.—25, 30 (top), 31 (top lt. & ctr.), 170, 184, 188; W.W.—31 (top rt.), 31 (bot. lt. & rt.), 52 (top lt.), 136; George Woodruff—52 (top rt.); John Zimmerman—129 (top).



Concrete Dividends for motorists and taxpayer

This old concrete road is N. J. 24 from Phillipsburg to Washington. Built 14 to 18 feet wide in 1912, it later was widened to 20 feet.

For 40 years traffic weights and volumes increased. Daily average now is 5220 vehicles, 800 of them commercial. Though not designed for such loads, and not comparable in riding quality to a modern concrete pavement, N. J. 24 still handles the traffic.

N. J. 24 is proof of the economy of concrete highways. Concrete usually costs less to build than other pavements designed for the same traffic. It costs less to maintain and lasts twice as long. Result: low annual cost.

Roads earn money too. For each mile you drive you pay a user's fee in license and gas taxes. The share earned by N. J. 24 long ago paid for its construction. Its annual earnings since have far exceeded its maintenance cost. The surplus pays for building desperately needed new highways—a substantial dividend for motorists.

Pavements less durable than concrete usually earn less than they cost to build and maintain. This drain on available funds leaves less and less for new highways.

Examples such as N. J. 24 prove that license fees and gas taxes invested in concrete roads pay big dividends. And extra dividends are on the way. With improved design, materials and construction methods, concrete roads now can be built to last 50 years and more!

PORTLAND CEMENT ASSOCIATION

33 West Grand Avenue, Chicago 10, Illinois

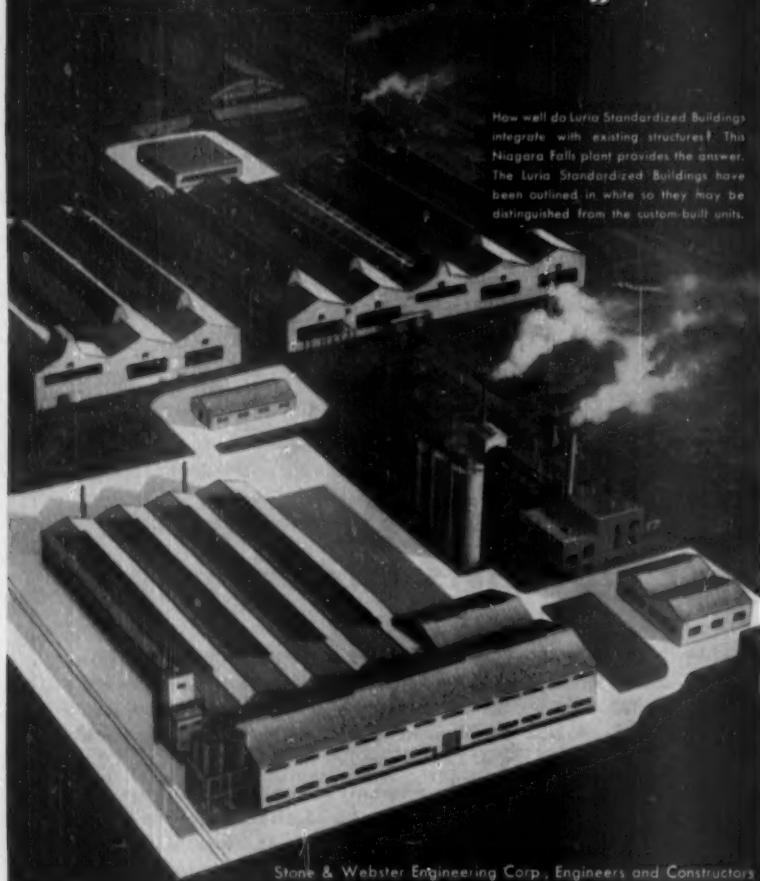
A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

ANOTHER INDUSTRIAL LEADER...

INTERNATIONAL GRAPHITE & ELECTRODE DIV.
SPEER CARBON COMPANY

chooses

LURIA Standardized Buildings



Stone & Webster Engineering Corp., Engineers and Constructors

The LURIA system of STANDARDIZATION lowers your building costs and adds high speed to your expansion program

All the advantages of custom-built units are included in Luria Standardized Buildings. Designed for durability, Luria structures surpass the most stringent building code regulations. And Luria's standardized components are engineered for

adaptability. They combine to successfully meet *individual* architectural needs. If these are the requirements of your expansion program, Luria can provide them for you... at less than the cost of custom-built units and in far less time.

LURIA ENGINEERING Company

511 FIFTH AVENUE, NEW YORK 17, N. Y.

District Offices : ATLANTA • PHILADELPHIA • BOSTON • CHICAGO • WASHINGTON, D. C.

Union Bias

Connecticut court upholds \$2,000 fine on AFL group for refusing membership to two Negroes.

Most labor unions admit Negroes to membership on an equal basis with whites. But some do not, even though union membership is often required to get or keep a job. And court rulings specifically upholding a Negro's right to equal membership are hard to find.

Last week, though, the Supreme Court of Connecticut made what may prove to be a key ruling in the field. The court sustained Superior Court Judge Howard W. Alcorn, who had ordered an AFL union to pay a \$2,000 fine for refusing to admit two Negroes to membership.

The ruling worries unions that still have membership color bars, for it is a major test of the effectiveness of laws on fair employment practices, and shows they can operate just as well against unions as employers.

The Connecticut case started back in 1952 when the state civil rights commission charged Local 35 of the International Brotherhood of Electrical Workers (AFL) with rejecting applications for membership of Warren B. Stewart and Mansfield T. Tilley because of their race and color.

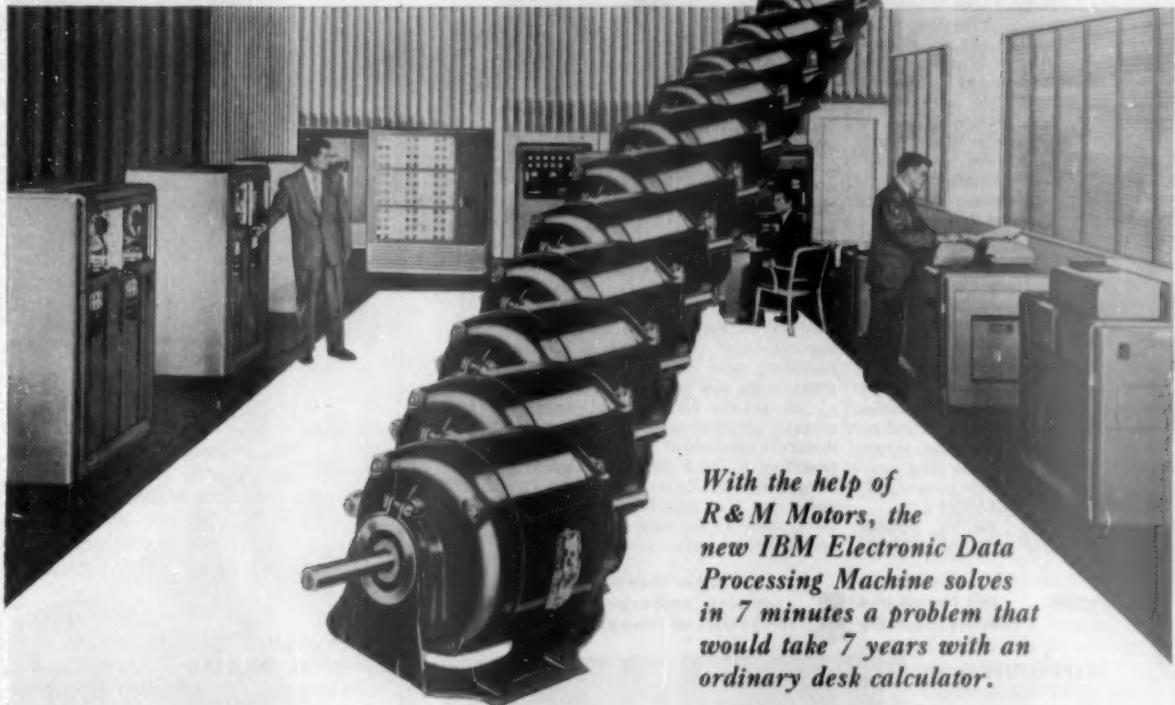
• **Union Rule**—The union answered that the men had failed to meet the membership requirement of one year's employment by a union contractor. The court rejected this defense and imposed the \$2,000 fine when the union failed to obey the commission's order to admit the two men.

In addition, the union must pay a \$500 penalty for each week after Apr. 26 in which it fails to stop practicing racial discrimination.

• **Protest**—At least one local FEP commission has rapped labor unions recently on their race bias. Pittsburgh's Fair Employment Practices Commission in its first annual report, just issued, said: "Labor organizations were named in five complaints (6.7%). In spite of the fact that organized labor was outspoken and greatly assisted in securing the passage of the ordinance; and . . . that the central bodies of both AFL and CIO have given the commission unqualified support, we find justified complaints against unions."

Most charges of racial discrimination have been against AFL unions and the independent rail unions, which have a tradition of exclusiveness anyway. The CIO and its industrial unions have always stressed no-discrimination.

19 MUSCLES for an electronic super-brain!



*With the help of
R & M Motors, the
new IBM Electronic Data
Processing Machine solves
in 7 minutes a problem that
would take 7 years with an
ordinary desk calculator.*

CUSTOM-DESIGNED OR STANDARD . . .

There's an R & M motor that
will meet your exact requirements!



Integrals—to
125 horsepower

Fractionals—from
1/200 horsepower



Matched Motor Parts—
for built-in applications

If it's an **R & M**
it's the Right Motor!



Imagine adding and subtracting 16,666 times per second; multiplying and dividing 2,192 times per second; "remembering" stored factors in 12 millionths of a second! That's what the IBM electronic computer means as a time-saver for industry.

If you have motors in your products, there's another significant fact about this outstanding development: *Robbins & Myers built 19 motors for use in this machine.*

Leading producers of motor-driven tools, machines and appliances recognize R & M as the *one* source that makes a specialty of building *exactly* the motor needed. Of course, if a standard R & M motor will do the job—fine. We build thousands of them. But, we also *custom-design* motors to your requirements. In short, the recommendations of R & M engineers aren't prejudiced by any limitations of stock designs . . . you don't have to compromise with what's *right*.

If you have a motor problem . . . or a new product design on the boards . . . write us today. Any details you can give us will be held in confidence, of course.

ROBBINS & MYERS, INC.

MOTOR DIVISION: SPRINGFIELD 99, OHIO • BRANTFORD, ONTARIO



Fractional & Integral H.P.
Motors & Generators



Moyno
Pumps



Propellair Industrial
Ventilating Equipment



Electric
Fans



Electric & Hand
Hoists & Cranes

WHICH OF THESE CHARACTERISTICS ARE ESSENTIALS ON YOUR REMOTE CONTROL JOBS?

Accuracy . . . High Load Capacity . . . Adaptability . . . Freedom from Trouble . . . Long Life . . . Flexibility . . . these are some of the qualities of **ACCO TRU-LAY PUSH-PULL FLEXIBLE CONTROLS** that have made it possible to improve the operation of literally hundreds of mechanical products (list on request). Full description of this versatile **REMOTE CONTROL** is given in our **DATA FILE** available for your further study.

ACCURACY is inherent in the basic design, and in the standards of quality and precise dimension that control the manufacture of **TRU-LAY PUSH-PULL CONTROLS**. These are precision products, not gadgets.

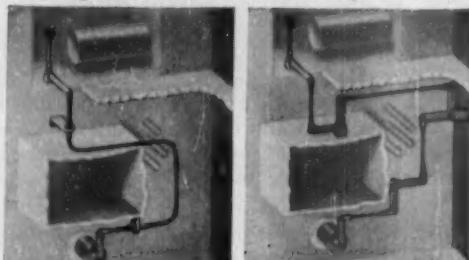
VERSATILITY of this fine remote control can best be illustrated by citing some of the jobs it handles well . . . **HOT** jobs on jets and industrial furnaces . . . **COLD** jobs down to -70° F. . . **WET** jobs (the conduit can be completely immersed) . . . **DIRTY** jobs . . . **ABRASIVE** jobs . . . **CORROSIVE** jobs . . . **HEAVY, TOUGH** jobs up to 1,000 lbs input . . . **LIGHT**

To give you
this simple and
effective assembly

DUTY jobs . . . **REMOTE** jobs 150 feet or more from the control point . . . these units are frequently and successfully used in conjunction with electric, hydraulic and air controls . . . are thoroughly effective under almost any operating condition.

"**SOLID as a rod but FLEXIBLE as a wire rope**" aptly describes **TRU-LAY PUSH-PULL CONTROLS**. This **flexibility** provides positive, remote action whether anchorages are fixed or movable . . . it damps out noise and vibration—protects delicate instruments . . . it permits ease of handling and shipping even when assemblies are 100 or 150 feet long . . . it avoids the risk of damage always present with solid tubular controls that must be preformed to position . . . and flexibility greatly simplifies installation of controls by reducing the number of working parts and by making it possible to snake around obstructions. . .

... rather than this
complex (and expen-
sive) series of linkages



ADAPTABILITY to all sorts of mechanical situations explains, in large measure, the wide-spread application of **TRU-LAY PUSH-PULLS**. Standard anchorages, fittings and heads have been designed that meet requirements on approximately 80% of the installations. Simple modifications of these standards, or minor changes in your own design, cover almost every special situation. Our engineers have the know-how on such matters.

FREEDOM FROM TROUBLE and LONG LIFE are assured even under exceptionally adverse operating conditions because of such things as . . . full protection of the flexible, inner, working member by the tough

Whether your interest is in a single application of this versatile **PUSH-PULL CONTROL**, or in its inclusion as a component of the product you manufacture, the six booklets and bulletins in this **DATA FILE** will answer your further questions, and will also provide you with the means of defining to us the application you may be interested in.

flexible conduit . . . lubrication of the inner, working member for life during assembly . . . seals that keep moisture, dust and other foreign matter out of the unit . . . cold swaging of fittings that make them integral parts of the control unit. (Full construction details in our **DATA FILE**). We have never heard of a **TRU-LAY FLEXIBLE PUSH-PULL CONTROL** wearing out in normal service.

ACCO

WRITE for a copy, without obligation

**DATA
FILE**

AUTOMOTIVE and AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE



601-A Stephenson Bldg., Detroit 2
2216-A South Garfield Ave., Los Angeles 22 • Bridgeport 2, Conn.

LABOR BRIEFS



Pickets patrolled the idle General Mills flour mills in Minneapolis (above) and in 20 other cities in 13 states this week in the first company-wide walkout in the milling industry. AFL's American Federation of Grain Millers called 4,650 General Mills members off jobs in a dispute over a master-contract clause covering work schedules. Wages aren't an issue.

No segregation "in any form" is to be permitted in CIO offices, halls, and functions, Walter Reuther, CIO president, reminded regional directors and industrial union councils in a letter. He urged them to "see to it that the CIO policy . . . is enforced." CIO announced its no-segregation policy in April 1950—and caused a stir in its southern offices (BW-Jun.10'50,p114). The new letter stresses that it "applies with equal force and effect to all functions" under CIO auspices.

Premium pay, at time-and-a-half, will be sought by the International Ladies' Garment Workers' Union (AFL) for all work in excess of 35 hours a week, the union's executive board has announced. ILGWU contracts covering 350,000 members now provide for the 35-hour work week (BW-Jan.16'54,p168), but in most instances there's no overtime pay unless workers put in more than 40 hours.

Severance pay is hiked in a contract extension signed by Local 688 of the Brotherhood of Teamsters (AFL) in St. Louis and Warner-Hudnut, Inc., covering a plant to be shut down this year. The agreement will provide up to 26 weeks' layoff pay, the amount depending on age of worker and length of service.

For the Record

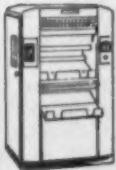


A. D. Bruce, President, Vapor Heating Corporation

In its constant search for more modern and improved methods of doing business, Vapor Heating Corporation has installed Copyflex machines in both office and plant. These Copyflex copying machines help speed paper work and prevent errors.

In recent years thousands of industrial and business concerns all over the country have found that efficiency in production and merchandising cannot be obtained without corresponding efficiency in the handling of paper work.

In any business or plant operation where multiple copies of a record are required, Bruning Copyflex will save man-hours and eliminate errors. It applies to office procedures and plant management the accepted principle of replacing expensive—and possibly inefficient—hand labor with a machine.



BRUNING
Copyflex

Copies anything typed,
written, printed or drawn
on ordinary translucent
paper—in seconds.

CHARLES BRUNING COMPANY, INC., 4700 MONTROSE AVENUE, CHICAGO 41, ILLINOIS

From an article by

A. D. Bruce

President

Vapor Heating Corporation
Chicago

One of the best forms of insurance for any business is continuous research to improve existing products and develop new devices for present customers as well as to provide new and expanded markets.

Research insurance is not a low cost business protection but in our competitive business economy it is a *positive* protection that a company cannot afford to be without. Markets are always changing; every day new products and techniques come from the laboratory. Productive hands and machines produce these products; intelligent merchandising sells them. Thus are products created to replace those that have lost their markets.

As methods in industry and tastes of people change, so business must change. We all know cases where companies failed because they were unwilling to change or meet the challenge soon enough to prevent their products from becoming obsolete.

Production research requires well balanced teamwork on the part of management, sales, and producers, as well as research engineers. We all realize that creative research does not immediately bring forth products that can quickly and easily be put into production and distribution with a satisfactory profit. This effort, however, which at the moment may seem unproductive, often directs the way to a new approach, the results of which will more than offset the cost of a continuous research program.

One of the best examples of this kind of thinking in our Company is the steam generator which we developed to produce steam for heating railway passenger cars drawn by diesel locomotives, now generally used by railroads all over the world. Many discouraging and real problems were encountered which were answered through continuous research. We now find that this unit can be used advantageously in many different industries needing processes in steam.

Research has also taken us into a prominent position in electronic and thermostatic controls for vital aircraft. Our experience is not unique; it convinces us that industry is keeping abreast of the changes in modes of living through continuous research.

THE TECHNIQUE OF HANDLING PEOPLE

Just Published—Revised Edition

Presents 11 practical pointers on what to say and do in your everyday contact with others in order to win their friendship, goodwill, and cooperation. Methods are clearly demonstrated in numerous stories of real people of today, including outstanding business and industrial leaders. Book shows how to improve your relations with others—how to secure better results in training, directing, supervising, etc. By Donald A. and Eleanor C. Laird. Revised Ed. 170 pp., 16 Illus., \$3.75.



COST ACCOUNTING

Just Published—Third Edition

Highlights from managerial viewpoint effective cost accounting practices for the manufacturing, distribution, and administrative divisions of business, as well as special functions of cost control for department stores, banks, and government units. Details control of material, labor and factory overhead, budgeting, job order and process cost procedures, etc. By John G. Bleeker, Chmn., Dept. of Acct., and W. Keith Weltmer, Assoc. Prof. of Acct., Univ. of Kansas. 3rd Ed., 700 pp., \$6.50.



OCEAN TRANSPORTATION

Just Published

Shows from the shipping industry's own viewpoint how shipping fits into the world economy PLUS how the entire shipping process operates from traffic management and freight forwarding, through the ship itself and the charter, to the men who man the ship and the organization that owns or operates it. Includes financing, admiralty, insurance, etc. By Carl E. McDowell, Exec. Vice Pres., Am. Inst. of Marine Underwriters, and Helen M. Gibbs, Research Con. 428 pp., Illus., \$7.90.

C.P.A. PROBLEMS AND SOLUTIONS TO C.P.A. PROBLEMS

Just Published—Fourth Edition

233 typical problems chosen from the practical accounting section of many actual C.P.A. examinations, plus authoritative, fully worked-out solutions for each. Includes 233 questions on accounting theory and 175 on auditing, also from recent exams. By Jacob B. Taylor, C.P.A., Prof. of Acct., Vice Pres., & Bus. Mgr., Ohio State U.; and Herman C. Miller, C.P.A., Prof. & Chmn., Dept. of Acct., Ohio State U. 4th Ed., 2 Vols., 1141 pp., \$14.50 EASY TERMS

SEE THESE BOOKS 10 DAYS FREE

McGraw-Hill Book Co., Inc.
Dept. BW-4-10, 330 W. 42 St., NYC 36

Send me book(s) checked below for 10 days' examination on approval. If 10 days I will return for book(s) I keep, plus few cents delivery, and return unwanted book(s) postpaid. (We pay delivery if you return with this coupon—same return privilege.)

Laird & Laird—Handling People—\$3.75
 Blocker & Weltmer—Cost Acct.—\$6.50
 McDowell & Gibbs—Ocean Trans.—\$7.90
 Taylor & Miller—C.P.A. Problems & Solutions (Part II), payable \$4.50 in 10 days, \$5 a month

(PRINT)
Name _____

Address _____

City _____

State _____

Company _____

Postage
This offer applies to U. S. only.

BW-4-10

LOCAL BUSINESS

Russell Rumpus

LITTLE ROCK — The Board of Censors here, in common with similar bodies elsewhere in the country, decided that Jane Russell's controversial movie, *The French Line*, was too spicy for the citizens of Little Rock and banned it. But the ban has backfired badly.

Most of the theaters in Little Rock are owned by Arkansas Amusement Co., which also operates The Pines, a drive-in just outside city limits. When the censors' edict was handed down, the company merely moved the film from the downtown Center Theater to The Pines. The first night the drive-in was jammed to capacity, and the lines of cars turned away were so long that the State Police had to send several patrol cars to untangle the resulting traffic jams. The picture has continued to play to capacity audiences.

U-Drive-It Cruisers

COLUMBUS, OHIO — Suburban Marion Township, just south of here, has swelled out in the past few years. Recently township officials decided the thickly populated area ought to have police cruiser protection. But they were stymied by a state law that forbids townships to own police equipment.

Last week Marion constables were driving two new cruisers anyhow—as a result of a plan hatched by the township's businessmen to get around the law.

Businessmen, along with other prominent residents, formed the Marion Township Safety Committee. The committee rented two fully equipped cruisers from the U-Drive-It Co., for \$92 a month each. Then the committee rented the cruisers to the constables at cost; the constables are reimbursed by the township for their expenses.

The \$92 includes repairs and maintenance. U-Drive-It will replace the cruisers with new ones every six months.

Crossed Wires

NORWICH, OHIO — This little village of 200 people in southeastern Ohio has been without telephone service for about a year now, ever since Norwich Mutual Telephone Co. went out of business. Last week, the state Utilities Commission ordered Ohio Bell Telephone Co. to submit plans for servicing the village.

The order was issued over the objec-

tions of both Ohio Bell and Ohio Consolidated Telephone Co., an independent with headquarters in Portsmouth. Ohio Consolidated serves the village of New Concord, 3 mi. east of here, and wanted the extra business. Ohio Bell serves the city of Zanesville, 13 mi. west of here, and didn't.

But the commission held that Norwich's primary interest lay with Zanesville rather than with New Concord, and that, therefore, its citizens would be best served by the telephone company that also serves Zanesville.

Updates

OKLAHOMA CITY — Interstate cooperation in toll-road planning (BW-Mar. 27 '54, p94) passed a new milestone here last week when turnpike officials from Kansas and Oklahoma got together to plan their new roads. Not only did they decide on where the two pikes would meet (at Hunnewell, Kan.), but they also worked out preliminary plans for reciprocal collection of tolls. Under the plan, when the roads are completed, a driver will be able to go all the way from Kansas City to Lawton, in southwestern Oklahoma, before stopping to pay toll.

CHARLESTON, S. C. — After being close to settlement for more than a year (BW-Mar. 28 '53, p156), Charleston's Union Station controversy this week seemed headed right back where it started—the state Public Service Commission. In January 1947, the old Union Station, owned jointly by the Atlantic Coast Line and Southern railroads, burned down. Southern took the wheels off an old coach in its freight yard and used that as a station; ACL served the city from its North Station, 5 mi. up the peninsula. The city appealed to the commission, finally got an order directing the roads to rebuild the station. The roads appealed all through the courts, finally lost in the U.S. Supreme Court last spring.

There was talk that the city would waive the new station in return for grade-crossing elimination and track relocation within city limits by the rails (BW-Nov. 7 '53, p68). That fell through, however, and the roads went ahead with plans for the new station. Last week they revealed their plans—a 28x54 ft. building. The city indignantly refused to approve any such "inadequate" terminal; the roads refused even to consider anything larger. And Mayor William McG. Morrison announced he'd go back to the commission if the roads don't modify their stand.

Steel that keeps a lift truck from letting down

STEEL mills use giant ram trucks to pick up and carry coils of steel weighing up to 50 tons. This whopping load is concentrated on the truck's drive axle shaft. To avoid breakdowns it takes not only a strong steel but a long-wearing steel.

The truck manufacturer couldn't wait for on-the-job results to prove or disprove his choice of steel. He called in Timken

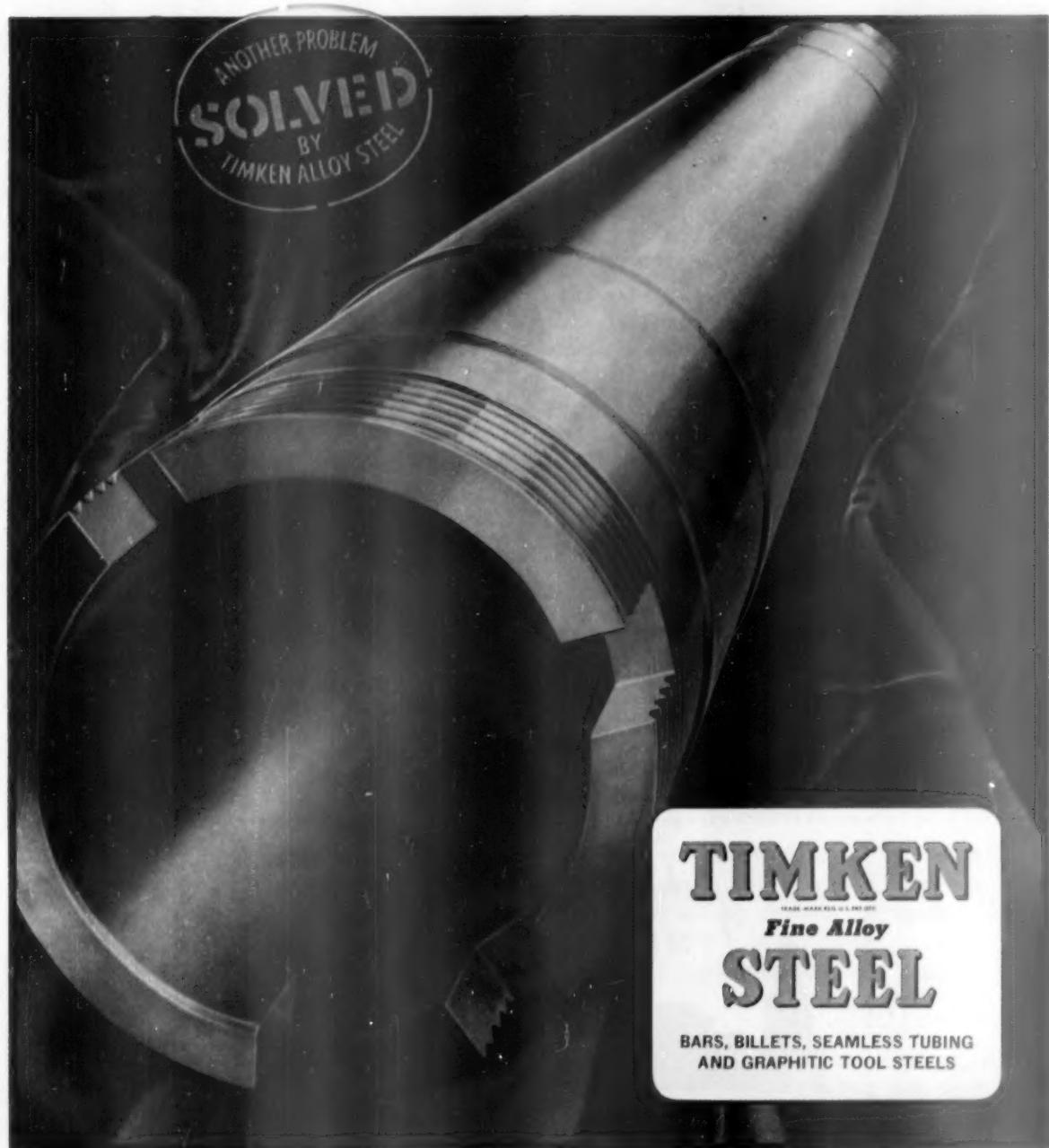
Company metallurgists while the trucks were still in the design stage. With design information and service requirements supplied by his engineers, we were able to specify the right steel from the start: a certain analysis of Timken® seamless steel tubing.

It proved to be the answer. When heat treated, it gave a high surface hardness

to resist the heavy wear. And the tough core of the steel took the punishing loads with ease.

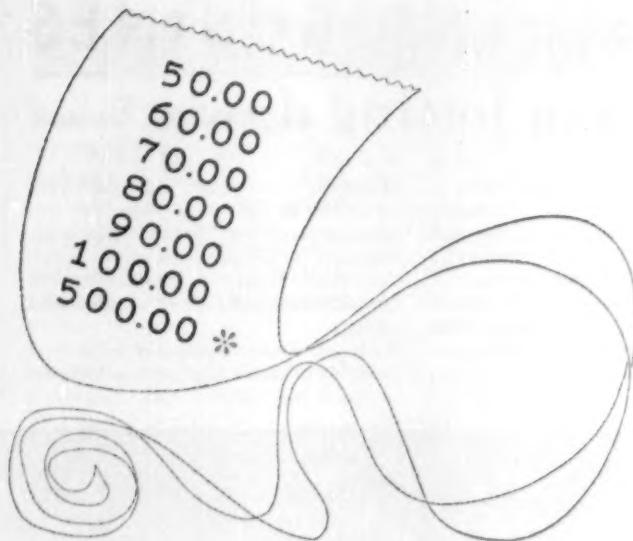
The industrial truck maker cut his production costs, too. Because Timken seamless tubing comes with a "built-in" hole, there's no drilling to do. He saves steel, machining time and tools.

This is yet another manufacturer's problem stamped "Solved—by Timken Alloy Steel". Get our help to solve yours. Write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO". Tapered Roller Bearings, Alloy Steel and Seamless Tubing, Removable Rock Bits.



COPR. 1954 THE TIMKEN ROLLER BEARING COMPANY

The
adding
machine
that
stole



\$25,000

NOT ONE man in a thousand could tamper with the inner gears of an adding machine to make these six figures add up to \$500.

But a dishonest employee did just that. He had the ingenuity to rig the machine so it would tell lies at his bidding. And he used it to defraud his firm of \$25,000 — before he was caught.

Such clever ways of stealing are diffi-

cult to detect. And it's even more difficult to recover funds that have been stolen and spent by a dishonest employee.

You'll never have to worry about detecting such a loss *or* recovering stolen property if you have Travelers Blanket Fidelity insurance covering all your employees.

This Travelers insurance protects you

against *any* and *all* dishonest acts of an employee.

A new booklet just published by The Travelers gives full details of Travelers Blanket Fidelity insurance and how it safeguards all kinds of businesses from dishonesty losses. For your free copy of this booklet, fill out the coupon below, attach to your letterhead and mail.

<p>YOU WILL BE WELL SERVED BY</p> <p><i>The</i> Travelers</p> <p>HARTFORD 15, CONNECTICUT</p> <p>ALL FORMS OF INSURANCE AND SURETY BONDS</p>	<p>Please send me full information about Travelers Blanket Fidelity insurance.</p> <p>Name.....</p> <p>Street.....</p> <p>City.....</p> <p>State.....</p> <p><small>N.W.—4-38</small></p>
---	---

PERSONAL BUSINESS

BUSINESS WEEK

APR. 10, 1954



Executives—non-teetotalers, that is—should take a look now and then at their consumption of alcohol. Very gradually, it may have increased over the years. Maybe now they need two more cocktails than they did 10 years ago to relax before dinner.

If so, they may be developing a habit that needs curbing; they could be going from enjoyment of drinking to dependence on it. That can affect health and efficiency. And, with some people, it can lead to alcoholism.

It's hard for executives who drink at all to keep from drinking too much—and from increasing their intake. Probably more than any other group, they are exposed to entertaining and being entertained, both on the business and social levels.

Heavy drinking is often a major part of such entertainment. So the pressure is almost constant for you to join in. (But note that drinking is seldom a social must. Any of a dozen good excuses will let you off without too much badgering from your host.)

Even the most graceful and experienced drinkers should keep in mind a few practical rules. By following them, you can continue to control your drinking—and keep it from seriously undermining your health.

Scientists say that the first rule of drinking is to know yourself. There are wide differences in the physical tolerance of individuals to assimilate alcohol. Everything from metabolism and allergy to plain physical size affects these differences. (A 200-lb. truck driver, for example, can usually drink more than a midget.)

Different people arrive at different times at the beginning of intoxication (.15% concentration of alcohol in the bloodstream). Thus two beers may affect one person to the same extent that three straight whiskies affect another.

The important thing to remember is that this has nothing to do with self-control or will-power. It's a matter of physical differences—and no amount of will-power will cause the two-beer man to drink the more tolerant man under the table.

Regardless of tolerance, you will get more enjoyment and less grief by taking a common-sense approach. Experts suggest that you follow these general rules when you know you're in for a heavy-drinking party:

- Whiskey (preferably Scotch or blended) either on the rocks or with water is safest (avoid ginger ale or soda). It has least effect on most people. Undiluted bourbon is considered too potent.
- Stick with it for the whole party—before, during, and after eating.
- Avoid cocktails before eating and heavy liqueurs afterward. Martinis and Manhattans are mixed drinks (wine and gin or wine and whiskey). Mixed drinks—as well as mixing drinks—get you into trouble.
- Avoid, too, rich foods and canapes. Otherwise you'll have a hangover of at least small proportions.

What are the chances of your becoming an alcoholic—if your intake is on the increase? The answer seems to hinge more on why you drink rather than on how much.

Thus if you're drinking to smooth rough edges of life, watch it. Never

PERSONAL BUSINESS (Continued)

BUSINESS WEEK

APR. 10, 1954

take a drink when you feel you really need one. And don't use alcohol as the sole means of easing a pervasive feeling of tension. The National Committee on Alcoholism gives this explanation of why:

As you reach the .15% intoxication point, you'll experience what scientists call the "pampering effect." Barriers and inhibitions go down fast; it's much easier to take more drinks than you intended. There's a feeling of relaxation from pressure and tension.

That's the real danger. You strive to reach that point of relaxation, and that may lead to "habituation"—your system gradually demands a greater quantity of alcohol to achieve the pampering effect.

Scientists say that not even the most casual social drinker is immune to this effect. So the thing to watch for is a shift in your drinking pattern. If the alcohol doesn't react as it used to, watch out.

—•—

The approach of spring has brought a raft of interesting developments for the home—inside and out. Here are a few of them:

For the weekend handyman: Shopmaster, Inc., has a new "plug-it-in" tilting-arbor circle saw. It has an eight-in. blade, comes complete with $\frac{1}{2}$ hp. motor, V-belts, pulleys, disposable sawdust bags.

How to Finish Wood Floors is a remarkably complete manual, detailing clearly every step in a complicated process. You can get it for 10¢ from Consumer Service, 710 Ohio St., Buffalo, N. Y.

Liquisan is a new liquid sander, designed for removing finish on old furniture right down to the wood. It's said to be more effective than the usual paint remover, takes less elbow-grease.

For outdoor living: A new picnic thermos uses an ordinary mason jar as its glass lining—meaning you can replace it easily in case of breakage. Called the Jolly Jug, it comes in three colors, sells for \$1.98.

The Skotch Grill is a round portable charcoal cooker, with a 14-in. grill. It has an air-cooled firepot, is designed to give steady, uniform heat. It is said to require only a small amount of charcoal. It sells for \$6.85.

Here's a tip for portable comfort: A lightweight air mattress, like those used by the armed forces. Made of duPont nylon, it folds up small when deflated, blows up to 25 in. by 73 in. It can be got for about \$10.

—•—

You can get an excise-tax refund on theater tickets you bought before Apr. 1 for some future date. But you must present the tickets to the box office before the performance—you're stuck if you have used them.

Since the new excise bill cut theater taxes from 20% to 10%, the saving is considerable: On a \$3 ticket, you pay only 30¢ tax instead of 60¢.

—•—

Exercise is important in rehabilitation from certain illnesses—polio, cerebral accidents, nerve injuries, and the like. But getting it is a problem; usually the patient is unable to mount a bicycle or a rowing machine.

American Restorator, Inc., has a new device that takes the bicycling or rowing motion to the patient. The Restorator adjusts to bed or chair easily, has various attachments to meet special needs.

—•—

You may find a little easing of the crowds on golf courses from now on. National Golf Foundation reports that 52 new courses opened in the U.S. in 1953; another 109 will open between now and early 1955.

Contents copyrighted under the general copyright on the Apr. 10, 1954, issue—Business Week, 325 W. 42nd St., New York, N. Y.



lonesome part of a popular product

The hermetic motor—that part of a modern refrigerating unit the user *never sees*—is truly "out of sight . . . out of mind."

And the fact that it is forgotten is a tribute to its design and construction, for here is a motor that must always function perfectly, while permanently enclosed in the compressor housing. *The "forgotten" part of many of America's most dependable refrigeration units is an Emerson-Electric Hermetic Motor.*

You can benefit from Emerson-Electric's 63 years of experience in motor design and production. If you have requirements in ratings from 1/20 to 5 h.p., or hermetic motors from $\frac{1}{8}$ to 20 h.p., Emerson-Electric has the right motor for you. Your inquiry is invited.

THE EMERSON ELECTRIC MFG., CO.
St. Louis 21, Mo.

Write for these Emerson-Electric Motor Data Bulletins

Manufacturers requiring motors 1/20 to 5 h.p. can profitably use these reference guides. Specifications, construction and performance data are included for these motors:

<input type="checkbox"/> M401-A Capacitor-Start	<input type="checkbox"/> M401-E Oil-Burner
<input type="checkbox"/> M401-B Split-Phase	<input type="checkbox"/> M401-F Jet Pump
<input type="checkbox"/> M401-C Integral	<input type="checkbox"/> M401-G Blower
<input type="checkbox"/> M401-D Fan-Duty	

EMERSON
MOTORS • FANS



ELECTRIC
APPLIANCES

COMPANIES



SHOWING OFF the lower frame, R. M. Crichton of Super Service Motor Freight demonstrates one of the tricks used in . . .

Designing a Souped-Up Truck Tractor

One day last month, a bunch of executives of the Super Service Motor Freight Co. sat in the boss's office in Nashville biting their fingernails. The first of the company's shiny new truck tractor units—out on its first trial run—was already three hours overdue. Finally the tractor rolled in, the driver bursting with excuses:

"Every time I stopped at a coffee stop, I locked up the cab. When I'd come out, there'd be half dozen other drivers swarming over the tractor trying to figure out what it was. They said I was a liar when I told them there was a 200 hp. engine under that little hood. Took me a half hour to get rolling again."

By the end of the year, however, Super Service's new 11,800-lb. tractor will be a familiar sight along the company's long-haul routes between its headquarters in Nashville and Philadelphia, New York, Knoxville, Chattanooga, Rome (Ga.), South Kearny (N. J.), and Baltimore. And if White Motors Co., the builder, has its way, they will eventually appear on a lot of other lines, too.

• **Streamline Job**—About a year ago, R. M. (Bob) Crichton, president of Super Service, decided to replace his fleet of

over-the-road power units, and to standardize its power equipment in the process. At that time, his fleet consisted of a hodgepodge of gasoline tractors, cab-over-engine gasoline units, and diesel units. While the old tractors were still serviceable, maintenance costs were

the two companies, test units of the White WC-24-TD came off the line a few weeks ago. The initial order of 140 will be delivered by Apr. 15, with another 50 coming later in the year.

• **Full Speed**—Putting its dream tractor on the road is just one more chapter in the fast-moving history of Super Service.

The company started life in 1932, with one truck, one customer, and one load of butter. It hauled the butter from Nashville to Philadelphia.

In 1939, Bob Crichton's father, Andrew, bought out the line. Up to that time, the company's growth was almost invisible to the naked eye. Bob, now 37, worked in various departments of the trucking company, became general manager, then president.

Within a year after the Crichtons took over, they got the authority to operate between Nashville and Chattanooga. Three years later, the company bought out rights that enabled it to expand into New York City and New Jersey, and later to establish terminals in other cities. Since then, Bob Crichton has kept his foot on the accelerator.

In 1940—the first full year of Crichton operation—revenue was \$428,892. In 1953, it was about \$10-million. And

Crichton's chief aim was to get more power, so that his trucks could climb Tennessee's hills faster. He started shopping around, but found that to get more power, he had to take either additional weight or size—or both. That would cut his payload. So he and his operations manager, T. R. Travillion, began compiling a list of the specifications they considered necessary. They talked to everybody—mechanics, drivers, safety engineers. The final list added up to a tractor that would be (1) safe, (2) comfortable, (3) economical, (4) light, (5) small, (6) powerful, and (7) quiet.

• **They Laughed**—Company skeptics hooted, but Crichton took his list and began the rounds of truck manufacturers. No one was interested in tackling his tractor until he got to White Motors Co. of Cleveland. White agreed to take on the project.

After endless conferences between



"SPILLS WON'T HURT NOW, SPORT!"

"**M**OM'S pillow sure helps! Comes in handy when I'm learnin' to skate!"

This young fellow has something to fall back on in case of an upset. He knows all accidents can't be avoided.

In business, the "cushion" against accidents is workmen's compensation insurance—placed with a reliable organization that assures quick, sympathetic service.

Hardware Mutuals rank among the leaders in promptness of paying workmen's compensation

claims. Promptness helps speed recovery by relieving financial worry. More important, our loss prevention specialists help eliminate hazards before they cause accidents.

Hardware Mutuals have returned more than \$120,000,000 in dividend savings to policyholders. Many other benefits are offered through our *policy back of the policy*. For more information, simply call Western Union, ask for Operator 25, and request the name and address of your nearest Hardware Mutuals representative.



Insurance for your AUTOMOBILE...HOME...BUSINESS

Hardware Mutuals.

Stevens Point, Wisconsin • Offices Coast to Coast

HARDWARE MUTUAL CASUALTY COMPANY • HARDWARE DEALERS MUTUAL FIRE INSURANCE COMPANY



"... Super Service uses a pony express type of operation . . ."

TRUCK TRACTOR starts on p. 178

the company is now a Class I carrier; last year its trucks traveled 16-million miles, hauled 473-million lb. of freight. It is one of the five truck lines leasing the Port of New York Authority's Union Truck terminal.

Since World War II, the company has spent \$5-million for new equipment and \$2,775,000 in terminal expansion. Its current expansion program includes \$2-million for the new tractors, \$1-million for square-nose trailers, and \$900,000 for new terminals in Philadelphia and Chattanooga.

• But No Holdups—Super Service, which is strictly a long-haul operation, uses a pony express type of operation. When a trailer leaves Nashville, the doors won't be opened again until it reaches, say, New York. Enroute, a second driver takes over at Bristol, Va., and a third at Winchester, Va.

This pony express system cuts running time to a minimum. The trailer goes right through to its destination without breaking loads. It allows full utilization of equipment. Drivers like the relay system because their runs are shorter and they can be home every day. Crichton has built air-conditioned sleeping quarters with recreation lounges at the overnight points.

The bulk of Super Service's freight is consumer goods going to market. Although Crichton handles some perishable shipments in insulated trailers, most of his cargo is miscellaneous merchandise—auto parts, cellophane, books, canned goods, ready-to-wear, appliances. Much of the South-to-East volume is items like shoes and textiles. It's nothing for the company to handle 35,000 packages in a single day. Last month, it trucked goods for more than 7,500 customers.

• Ounce of Prevention—Crichton's employees have a healthy respect for the way the boss operates his fleet. For one thing, he's a zealot on preventive maintenance. He won't let a truck go out with a dent in the fender—thinks that if mechanics are allowed to let a rig get sloppy looking on the outside, they're liable to get careless about worn clutches and brakes also. And he says that shiny tractors and trailers give his drivers pride in their equipment, and make a good impression on the motoring public.

He also works at keeping claims at a minimum. His company recently won first prize in the American Trucking Assn.'s National Claim Prevention contest. Last week Crichton's accident

A fast answer to lost production hours



HERE'S ONE
REASON why

Emery Air
Freight plays
an important part
in the planning of so

many of America's leading corporations.

A strip-mining machine broke down outside Wheeling, West Virginia. Usual stoppage is two weeks at a cost of hundreds of dollars an hour. A replacement part was located in Milwaukee. No flights outbound, so the Emery Agent put the part on the fastest train for Chicago where an Emery Agent trucked it from the train to the airport for non-stop flight to Pittsburgh. There a third Emery Agent got a small plane owner to fly him to Wheeling where he got to the mine

by station wagon. Machine was back at work in less than 12 hours.

Only Emery can do jobs like this because it provides the BIG-4 "musts" in moving goods...control, predictability, maximum speed, 24-hour service.

And you'll find these unique Emery services mighty handy...pickup and delivery, day or night...fire department runs...individual shipment control for tracing reports...delivery forecasts...Air Procurement and Timed Delivery services...special Assembly and Distribution privileges.

For this kind of Premium Service you would naturally expect to pay premium rates. But you may be paying more right now for ordinary service. Call us and get all the facts.

"Air Freight For Better Business"



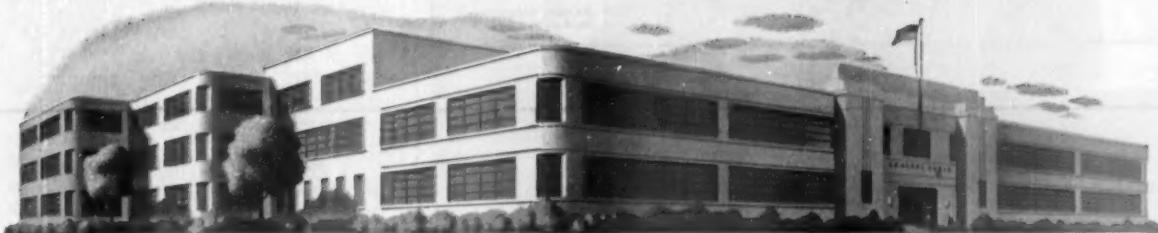
EMERY AIR FREIGHT CORPORATION

New York 17: Offices or agents in all major cities and towns in the United States, also serving Alaska and Canada.



THE GREATEST NAME IN ELECTRICAL WIRE AND CABLE

In the General Cable Laboratory



RESEARCH AND DEVELOPMENT

...unlimited

In 1882, General Cable established this basic policy: "Unfettered research and development is the only path to progress." This far-sighted philosophy has paid off for our customers and for us.

Today, the General Cable laboratory is the greatest single endeavor devoted exclusively to electrical wire and cable research and development.

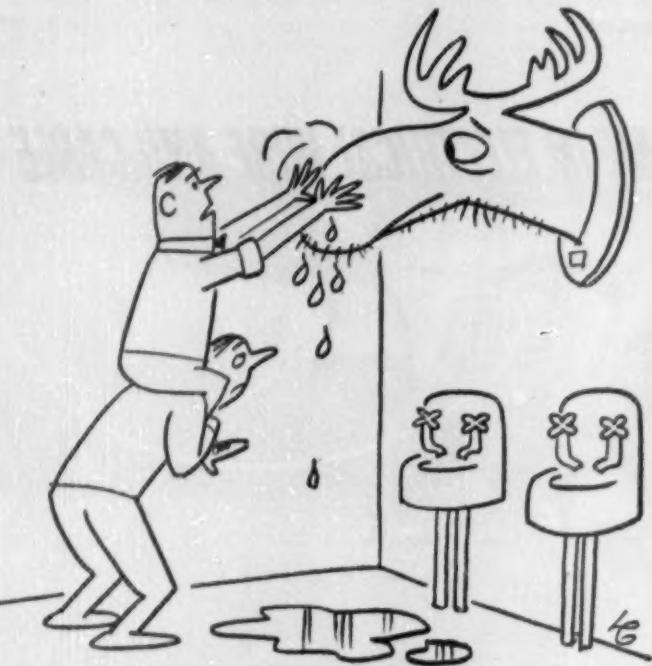
Most important—just as our staff of engineers...our network of distributors and stocks...and our manufacturing facilities are all at your immediate call, so too, are all of our research and development facilities. Whatever your wire and cable problem may be...you can be sure of our immediate and complete attention. If you have such a problem call or write us today.



BARE, WEATHERPROOF, INSULATED WIRES
and CABLES FOR EVERY ELECTRICAL PURPOSE

GENERAL CABLE CORPORATION

420 Lexington Avenue, New York 17, New York • Sales Offices: Atlanta • Buffalo
Cambridge (Mass.) • Chicago • Cleveland • Dallas • Detroit • Greensboro (N. C.) • Houston
Indianapolis • Kansas City • Los Angeles • Milwaukee • Minneapolis • New York • Newark
(N. J.) • Philadelphia • Pittsburgh • Portland (Ore.) • Rome (N. Y.) • Rosemoore (Ohio)
(Cincinnati area) • St. Louis • San Francisco • Seattle • Syracuse • Tulsa • Washington, D. C.



*Next time—use a ScotTissue Towel
(Just one does the Job)*

SCOTT PAPER COMPANY
Chester, Pa. ScotTissue®



A Specialist is Your Best Bet

Vinco Spline Gage Engineers Can Locate and Correct Your Spline Gaging Troubles as Expertly as a Navigator Can Determine a Ship's Position

The needless loss of time and money, caused by splined parts not being interchangeable or failing in operation, is amazing. If this is happening to you, don't hesitate, call in a Vinco spline gage specialist.

You will discover, as have so many other successful manufacturers, that the recommended corrective measures will clear up gaging confusion and reduce production, assembly and service problems.

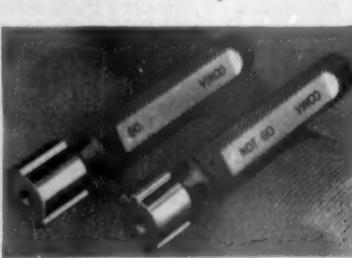
Such programs improve quality and reduce costs! In practically every case they have more than paid for themselves — proof that a specialist IS your best bet.

Vinco Corp., 9121 Schaefer Hwy., Detroit 26, Mich.

TRADEMARK OF DEPENDABILITY ®

VINCO

MILLIONTHS OF AN INCH FOR SALE



We'll see you in booth 121
at the A.S.T.E. Exposition

prevention program won the Trailmobile award for Tennessee. Super Service has a claim ratio of less than 1¢ per dollar of revenue, compared with an average in the industry of 2¢ to 2½¢ per \$1. By hammering the importance of claim prevention practices, Crichton figures he saves about \$500,000 a year.

- **Dollar Wise**—Crichton's competitors say he's a shining example of the spend-a-dollar-to-make-two-dollars school. His new-design tractor program probably backs that up pretty well. Crichton figures that with the new standardized fleet, Super Service's maintenance costs will be reduced sharply for several years, because all the tractors are new. Other savings will be realized through the changeover to diesel from the diesel-gasoline type of operation.

The new units are costing a little more than \$2-million and White Motors has arranged the financing on a four-year basis. The old units are being traded in on the new ones.

- **New Look**—So far, Crichton says, the new tractor has been almost too good to be true. Most important, it will take the Tennessee hills at a 35-mph. stride, instead of the old 15-mph. creep.

According to Super Service and White, the new unit has four major features that distinguish it from other diesel tractors:

- The 96 in. from bumper to back of cab allows the use of a 35-ft. square-nose trailer while complying with the 45-ft. tractor-trailer combination length limit under which Super Service operates.

- The diesel engine is tilted at a 20° angle and projects back into the right side of the cab. This gives added horsepower in even less space than in the old tractors.

- By using bent-frame construction, the frame under the engine, transmission, and cab have been lowered 8 in., while the standard frame height has been retained under the rear axle. This gives a lower center of gravity.

- **Trimming Weight**—Holding down the weight of the whole unit in spite of the added engine weight was one of the neatest engineering tricks. "We saved weight by lopping off 10 lb. here and 50 lb. there," Crichton says. Aluminum and aluminum alloys were used widely, for example, in engine accessories such as the fuel pump housing, in the front bumper, hood, radiator shell, and side panels. Other weight savers include a high tensile steel alloy frame, lightweight cast steel wheels, aluminum walkway behind the cab.

White Motors says the new tractor will soon become part of its regular line, and will be available to motor fleet operators all over the country. White's legal department is working on a patent of the tilted engine.

New Deals in Gas

Little Big Inch line may switch from gas to oil; new Gulf Interstate line will run as a contract carrier.

The natural gas business isn't past its pioneering era yet. Pipeline men this week are buzzing about two deals that may set new patterns in a brash young industry:

- Texas Eastern Transmission Corp. is poised to convert most of its Little Big Inch gas pipeline into an oil products line, become the first gas carrier to move into oil transportation in a big way.

- Newly formed Gulf Interstate Gas Co. is rapidly laying the first major gas pipeline in the U.S. designed solely for transporting gas as a common carrier, on a fee basis.

- Back to Oil—Texas Eastern's new President George T. Naff indicated in a recent speech that the company is set on converting Little Big Inch and is deep in engineering studies on the project—though it hasn't given the green light yet, or asked an O.K. from the Federal Power Commission.

If and when Texas Eastern takes the plunge, Little Big Inch will be back in the business it was built for in 1944. During the war, when submarines started taking a heavy toll of U.S. oil tankers, the government built Big Inch and Little Big Inch to carry oil products from Gulf Coast refineries to the East Coast. Texas Eastern, one of the top gas pipelines in the country, bought the two lines from the government for \$143-million in 1947, converted them both into gas pipelines. Today the 20-in. Little Big Inch line, curving from Beaumont, Tex., through the Midwest to Linden, N.J., moves some 200-million cu. ft. of gas a day.

- Reasoning—Texas Eastern's new plan would harness Little Big Inch to transport oil products from refineries in the Beaumont-Port Arthur, Houston-Texas City, and Lake Charles (La.) areas through points along the way to Moundsville, W. Va. Company officials spelled out some of the details in their annual report to stockholders.

The changeover would cost the company a total of around \$75-million, but Texas Eastern has good reason to think it would be a smart move. For one thing, a 20-in. line is not the most economical size for transporting gas. One pipeline engineer figures he can ship twice as much gas through a 30-in. line, at an added construction cost of only 35%.

On the positive side, studies have convinced the company that there's a

Burroughs Calculator with Memory Dials



Remembers

what other calculators forget

Rehandling of figures is eliminated . . . because results of individual calculations obtained in the lower dials are automatically accumulated in the upper Memory dials.

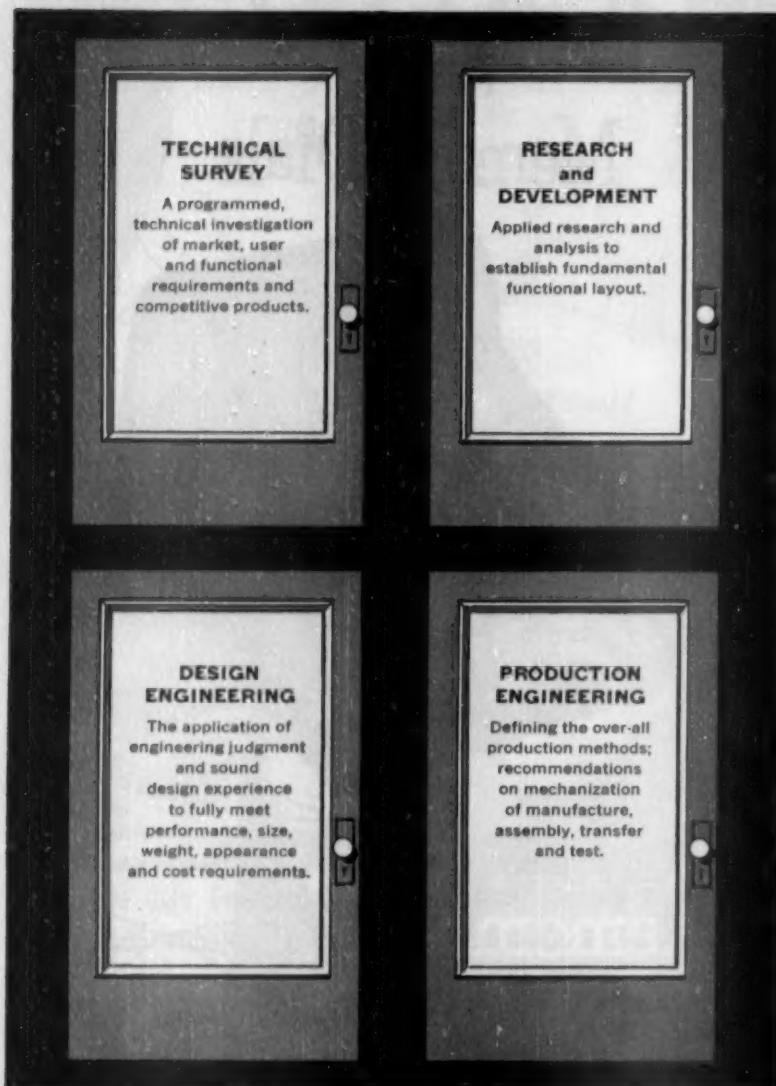
All-electric Burroughs Calculator gives instantaneous answers . . . and remembers them for you.

For a demonstration, call your Burroughs man or write Burroughs Corporation, Detroit 32, Michigan.



In the
Product Development Field . . .

ONE DOOR OPENS ALL FOUR



These Product Development Services . . . offered by Designers for Industry, Inc., may be used individually or as part of a complete, "packaged" development program . . . covering either products or special machines. Write for new 24-page book describing our complete facilities for engineering research and development.

DESIGNERS FOR INDUSTRY, Inc.

Established 1935

2915 DETROIT AVE., CLEVELAND 13, OHIO



solid need for an oil products line along the Little Big Inch route. (Right now, the area depends on barges.) And it's a lot cheaper to reconvert Little Big Inch than to build a new oil products line. Moreover, as an oil carrier, the company might be able to get an 8% return instead of its present 6%, set by the Federal Power Commission.

• Changeover Construction—Engineers figure the Little Big Inch could carry 235,000 bbl. of refined oil products—including heating oils, gasolines, diesel oil, kerosene—a day. While its wartime gathering system of tapping refineries in the Houston-Texas City and Beaumont-Port Arthur areas is pretty much intact, Texas Eastern thinks it will need additional facilities. Among them: a gathering setup in the Lake Charles area; large tank terminals on the Ohio River near Moundsville, W. Va., and on the Mississippi near Cape Girardeau, Miss.; extension of several lateral pipelines to tank terminals near Pittsburgh, Cincinnati, and Louisville. Moreover, subsidiary Texas Eastern Production Corp. recently bought the Triangle Pipeline Co., an oil line running from Texas to Arkansas that could easily tie with the Little Big Inch system. With its planned setup, the company could deliver either to the river terminals or to shippers' tanks along the way.

But Texas Eastern has no intention of letting go the 200-million cu. ft. of natural gas now handled by Little Big Inch. It plans to transfer that capacity to the company's 30-in. line. To do it, it will have to build two new sections of connecting pipeline, and step up compressor station horsepower for the



See How It Climbs

Willys Motors is busily showing off its Jeep in Latin America. The Jeep above is proving to onlookers near Mexico City that it can climb up a vertical ladder.

MORE POWER IN SMALLER FRAMES

SAVE
SPACE



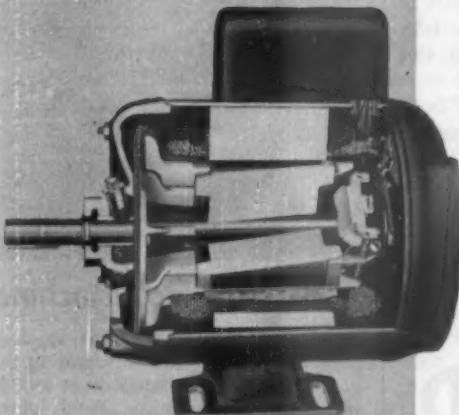
WEIGH
LESS

NEW *Century* Form "F" Fractional H.P. Motors

NOW AVAILABLE IN $\frac{1}{8}$ TO $\frac{3}{4}$ H.P.

Thanks to new techniques developed in the last several years, this smaller power package combines improved performance with even greater Century dependability.

Here's What New Techniques Deliver...



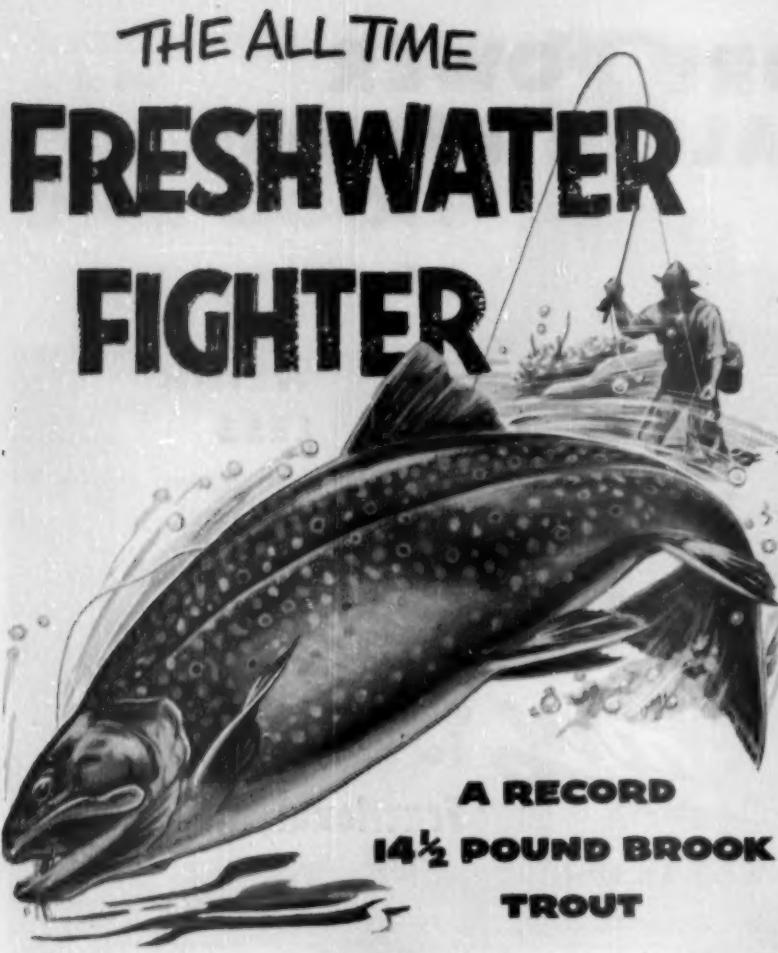
- 1 Better magnetic characteristics for the motor because of more uniform silicon laminated steel in magnetic cores.
- 2 A high dielectric and increased abrasive resistance qualities result from improved plastic insulated wire in the coils.
- 3 Important slot space is saved by improved plastic slot insulation. Extremely tough with higher dielectric resistance.
- 4 Unusual resistance to abrasion, moisture and heat is provided by improved thermal setting plastic varnish insulation on windings.
- 5 Squirrel cage rotors are more uniform because of improved high-pressure die-cast aluminum rotors. Individually, dynamically balanced.
- 6 Increased cooling ability is provided by improved ventilation.
- 7 These new Century Motors incorporate all mechanical features proved effective in thousands of varying applications.

For full details on Century Fractional H.P. Motors—write for bulletin 1-5 Page I. Century also offers a wide range of types and sizes in AC and DC . . . $1/8$ to 400 H.P.



CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities



Our "native" American brook trout is seldom caught in weights over five pounds. Few have ever been caught that even approached the record: a 14½ pounder, landed on the Nipigon River, Ontario, back in 1916.

More beautiful than smart, and more crafty than spectacular, the brookie is the traditional challenge to an expert. Strong jawed, aggressive, quick to take advantage of sharp ledges, snags and white water, he's a clown, an acrobat, and a river boat gambler.

The angler who beats the record must know every trick in the game from stalk to landing. In the end he will have caught the spirit of American troutting.

Another of America's Favorites . . . is Atlantic Bond. In the nation's industry Atlantic Bond has made an outstanding record: ten of the twelve largest insurance companies, eight of the country's leading tobacco companies and fifteen of the eighteen largest banks in Eastern United States use Atlantic Bond business paper for better-looking office forms or letterheads. Specify the choice of top businessmen — Atlantic Bond.

EASTERN CORPORATION, BANGOR, MAINE • MAKERS OF

**ATLANTIC BOND
PAPER** *for Business*

For a full-color sheet showing America's Favorite Fresh Water Fighters, attractively illustrated and suitable for framing, ask your printer or write on your letterhead to Eastern Corp., Bangor, Maine.

30-in. system to move 600-million cu. ft. of gas a day instead of the present 385-million.

• **Carrier Setup**—While the wheels are turning at Texas Eastern, Gulf Interstate Gas Co. of Houston is rushing ahead on the final stages of an equally novel project. By November, 1954, Gulf Interstate expects to start operating a new 850-mi., 30-in. pipeline under a setup that marks a big departure for a major company in the gas field.

Most pipelines buy gas from producers in the field, then transport it and sell it to distribution companies or industrial users. Gulf Interstate won't follow this pattern at all. Gulf will sell its transportation service on a fee basis, won't own any of the gas it moves.

Gulf's only dealings will be with United Fuel Gas Co., a subsidiary of Columbia Gas System, Inc., one of the biggest gas distributors in the U.S. The \$129-million line, running from Rayne, La., to Leach, Ky., will pick up gas in the southern Louisiana oil and gas fields and deliver it to United at the other end. United, hub of the Columbia Gas system as far as gas supplies are concerned, has made contracts with a number of gas producers in the fields.

Gulf and United have signed a 20-year contract with a cost-of-service formula written in. Under it, Gulf agrees to deliver up to 375-million cu. ft.



Letters by Slot Machine

A traveling businessman can now get off his letters, or that report to the home office, on the jump—from a desk-size booth right in his hotel lobby. Put a quarter in the slot, out pops a 15-min. Dictabelt record; another quarter activates the Dictaphone; an envelope for mailing comes with the record. The deal is called Travel Talk. Trial setups have drawn the customers in Akron, Cleveland, and London, Ont.; 200 booths are in production.



When rubber shatters like pottery...



A child's rubber ball, chilled to -320°F ., shatters when dropped. Electronic flash tripped by microphone 1.035 milli-seconds after contact, photographed by Ralph Bartholomew, Jr.

It happens right before your eyes. Still you can hardly believe the fantastic things that take place at deep sub-zero temperatures.

Rubber breaks like a clay flower pot. Mercury freezes so hard you can hammer nails with it. Hammer a frozen orange with it, and the chips of fruit fly off like bits of granite. The very air itself turns into a bluish liquid that pours like boiling water.

You feel as if you had awakened in some dizzying space-man world. And when you see metals like tough structural steel crack up under a blow as if they were glass, you realize the puzzle confronting men who have to work with temperatures reaching down into the depths near Absolute Zero.

An oxygen vaporizer, for example, has to withstand a bursting pressure test of more than two tons per square inch at -300°F . A helium liquefier works at 455° below zero Fahrenheit. How in the world do they make equipment to stand such pressures and temperatures without breaking up or bursting?

Strangely enough, the practical answer to this difficulty is an easy one: INCO Nickel Alloys. One of the

many peculiar advantages of nickel alloys is the fact that these sub-zero temperatures have little or no effect on their inherent toughness and ductility. They simply become still harder, still stronger.

(By the way, if you would like more data on this subject you are welcome to a copy of "High Properties at Low Temperatures" by our Director of Technical Service.)

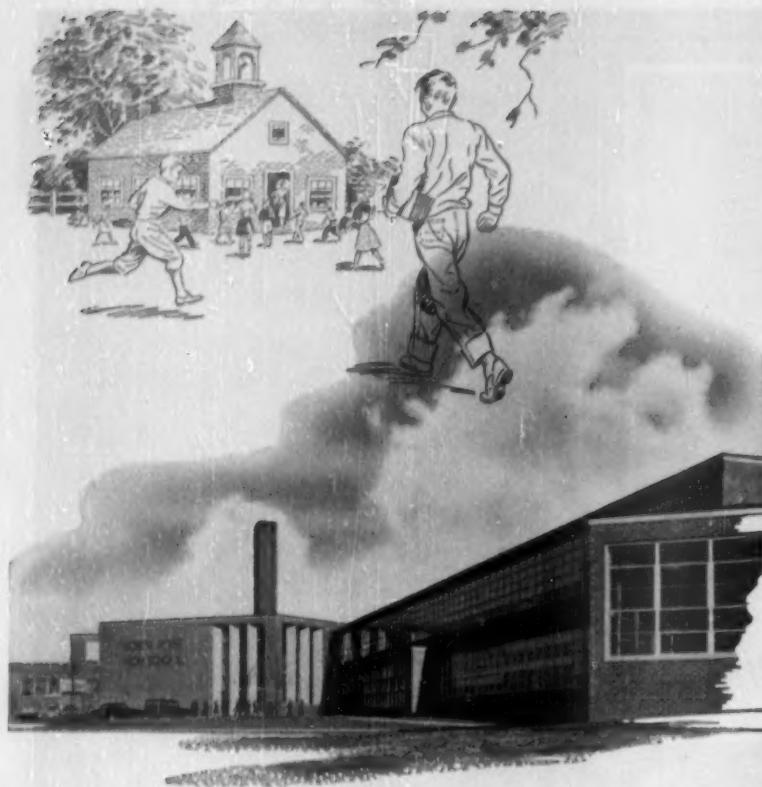
The point is, maybe you are being bothered with some metal problem in your product or plant that would be just as easy to solve with one of these INCO Nickel Alloys. The first step is to outline the trouble and send it along for study to The International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y.

THE INTERNATIONAL NICKEL COMPANY, INC.



Nickel Alloys

MONEL® • "IR"® MONEL • "K"® MONEL • "KR"® MONEL • "S"® MONEL
INCONEL® • INCONEL "X"® • INCONEL "W"® • INCOLOY®
NIMONIC® Alloys • NICKEL • LOW CARBON NICKEL • DURANICKEL®



The little red schoolhouse is grown up now!

Most of the "little red schoolhouses" have had to be expanded or replaced to meet the problem of ever-rising enrollments.

A shortage of almost half a million schoolrooms has challenged the construction industry. This challenge has been met by construction of new schools and by enlarging present facilities.

Through surety bonds which guarantee performance of the construc-

tion contract, U. S. F. & G. has helped make thousands of school buildings possible. In addition, community investments in schools throughout the United States and Canada are protected by a variety of insurance coverages.

Whether you help build schools as a contractor or help finance them as a taxpayer, you will find U. S. F. & G. coverages for your business or individual needs.



*Over ten thousand agents . . . there's one in your community.
Consult him as you would your doctor or lawyer.*

U.S.F.&G.

CASUALTY-FIRE
INSURANCE
FIDELITY-SURETY
BONDS

United States Fidelity & Guaranty Company, Baltimore 3, Md.
Fidelity Insurance Company of Canada, Toronto

of gas a day. United, in turn, will pay all of Gulf's operating expenses, allow 34% on the depreciation of Gulf's property, pay all of Gulf's income taxes, and permit Gulf a return of 6% based on the company's net invested rate base, now figured at \$129.5-million.

• **Good Deal**—The deal tastes sweet to Gulf. Whatever risks there are fall into United's lap. Gulf doesn't have to worry about taxes, rising field prices for gas, or "favored nations" contracts with gas producers. It won't have to go through the costly, drawn-out process of periodically pressing FPC for permission to up its prices every time field prices climb. In fact, it will have a minimum of dealings with FPC; it had to get only a certificate of necessity to build its line and an O.K. on its 6% rate return.

Gulf Interstate President Hy Byrd is already predicting the company will make 83¢ a share on common stock for the year starting Oct. 1, 1954. With earnings certain, he's forecasting dividends of 55¢ a share as of 1955.

United and Columbia have their own reasons for feeling enthusiastic. Gas demand in the middle eastern and mid-western states they serve is rising. Columbia gets gas from several major pipelines now, but it feels Gulf's operation will be as efficient or more efficient and economical than any line in operation. For one thing, it will use push-button compressor stations that cut personnel costs.

And Columbia feels Gulf can pare operating costs, and encourage United



Fixing Up the Winners

It's a fast year for merry-go-rounds, and to meet the spurt in demand the eight painting operations on each horse (one is shown in the picture) have to be crowded into one instead of the usual three at the Parker Amusement Co. in Leavenworth, Kan.

SOUND CONDITIONING



The comfort and beauty of KDUB-TV's reception room makes a good impression on clients and other visitors. An acoustical ceiling of attractive Armstrong's Travertone contributes much to this warm welcome.



Clients' booths, overlooking sets, must be quiet and comfortable. In this one, the Travertone ceiling absorbs as much as 80% of the noise that strikes its surface. Its fissured, white-painted surface also adds beauty.



Echoing footsteps and voices in the corridors might pose a serious noise problem were it not for the Travertone sound conditioning. Easily maintained, Travertone can be washed or repainted whenever necessary.

In This Texas TV Station

Quiet Plays A Leading Role

Modern television stations are a complex network of studios and offices, sets and control booths. Activity throughout the building is so varied that only the most careful station planning prevents complete chaos.

KDUB-TV in Lubbock, Texas, took a big step in solving their confusion problem by installing sound-absorbing ceilings of Armstrong's Travertone. A highly effi-

cient acoustical material, Travertone soaks up distracting noise and helps maintain a calm and quiet atmosphere.

Get full details on all of Armstrong's sound-conditioning materials from your Armstrong Acoustical Contractor. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4204 Indian Road, Lancaster, Pennsylvania.



ARMSTRONG'S ACOUSTICAL MATERIALS



Office employees benefit from quiet, too. In office areas, noise-absorbing Travertone helps keep mistakes to a minimum. An incombustible mineral wool material, Travertone meets the strictest fire regulations.

clues: TO THE SOLUTION OF MANAGEMENT MEN'S PROBLEMS.

Published every week—closes 12 days in advance. Rate—\$5.85 per line (\$2.98 per line for positions wanted ads), minimum 2 lines. Allow 5 average words as line; count 2 words for box number. Write for special rates for Business Services advertisements. Address box number replies c/o BUSINESS WEEK to the office nearest you. NEW YORK, 330 W. 42nd St., CHICAGO, 520 N. Michigan Ave., SAN FRANCISCO, 68 Post St.

EMPLOYMENT

Positions Wanted

Albert Bonelli Doctor of Political and Social Sciences Royal University of Rome, Italy. Bachelor of Law Rutgers University. Seeks Executive position at top Policy level. Excellent references. 508 North 63rd Street, Philadelphia 31, Pa. TR-7-3172.

Accountant: Experienced in general and cost. University graduate. Willing to travel. PW-2346, Business Week.

Reliable, alert young man soon available to carry out policies and procedures to help attain maximum efficiency for your organization. Age 31, high-school grad., able to adopt proper attitude and incentive. Background, aviation maintenance, operations, liaison, representation, contract coordinating. Broad experience overseas commercially. Desire responsible, challenging position in the field or abroad, willing to learn. Prefer aviation, transportation, construction. PW-2247, Business Week.

Electronics-Engineering and Manufacturing executive. Many years successful, top level experience. Seeks opening as Director of Engineering, Works Manager, Division head. PW-2356, Business Week.

Have more than twenty years' executive experience in chemical compound manufacturing. Thoroughly conversant with all phases of management. Have specialized in selling. Have intimate contacts in railroad field. Have passed sixtieth birthday. Seek connection where experience, integrity, intelligence and willingness to accept responsibility are of more value than youth. PW-2305, Business Week.

Re for company in need of top executive. Can offer proven industrial sales experience at executive level. Chemical Engineer, Age 41, Reply Box PW-2356 Business Week.

Personnel-Industrial relations junior Executive wishes to undertake labor relations. Experience with major electronics manufacturer includes all phases personnel, purchasing and production control. Age 25. B.S. Industrial Relations Min. \$5000 PW-2357, Business Week.

Selling Opportunities Wanted
Established manufacturer's representative, graduate engineer, needs additional lines. Operates south central Pennsylvania, calling on architects, contractors and industrials. RA-1951, Business Week.

Established Manufacturer's Representative desires account requiring contractual and engineering liaison with Wright Patterson or Gentile Air Force Base, Floyd Tye, Dabell Station, Box 66, Dayton 10, Ohio.

Manufacturer's Representative Available — 15 years experience in selling to the Federal Government. James F. Hardy, Barr Building, Washington 6, D. C.

SPECIAL SERVICES

Need Translations? Any language. House organs, Sales letters, Manuals, Catalogues, Advertisements, Scripts. Technical material a specialty. Write Overseas Business Services, McGraw-Hill International Corporation, 330 W. 42, N. Y. 36, N. Y.

Valuation of Capital Stock, Goodwill. Ask for free information and cost basis. H. M. Fischer 60 E. 42 St., N. Y. 17, N. Y.

to buy more gas. With increased demand, Byrd figures Gulf could boost capacity of the line to 565-million cu. ft. daily by spending about \$30-million—thus swelling its return. Byrd built four Mississippi River crossings instead of two to pave the way for expansion.

• **From Way Back**—Byrd is a native Texan and a lawyer by profession. But he's an old hand at the oil and gas pipeline business. He took over as vice-president and treasurer of the Panhandle Eastern Pipe Line Co. in 1943. In 1950, he got the job of president of the Trunkline Gas Co., of Houston, a Panhandle subsidiary, and later also became executive vice-president of Panhandle.

Byrd first got thinking about a cost-of-service pipeline when Trunkline started delivering gas to Panhandle. Because it was a subsidiary, FPC said Trunkline should charge on the basis of cost of service and a fair return instead of a unit basis. After Trunkline officials learned to live with the setup, they got to like it.

When Columbia sounded out Byrd to buy gas from Trunkline two years ago, he concluded the best answer was a separate pipeline. Originally, Byrd figured Gulf Interstate would wind up owned by Panhandle stockholders. He gave them first crack, but they bought only a small part of the stock. So Byrd left Panhandle and Trunkline in October 1953, to set up Gulf as an independent company.

COMPANIES BRIEFS

Diversification policies of both companies are behind Budd Co.'s option to buy or lease the auto body plant of Murray Corp. of America in Detroit. Budd is broadening from the rail to the automotive field; Murray has been moving out of the auto field as the big manufacturers have integrated their operations. Budd's option on the 2.5-million sq. ft. plant runs to July.

• **Howe Scale Co.** of Rutland, Vt., is selling out—subject to approval of stockholders on Apr. 22—to David Berdon and Jay Levine of New York, owners of Columbia Mills, Syracuse; Hammacher Schlemmer & Co., New York; Wright Machine Co., Worcester; Rensselaer Valve Co., Cohoes, N. Y.; Boston Storage Warehouse, Boston.

Executive and sales offices of the Janitor divisions of Surface Combustion Corp. are moving from Toledo to Columbus, where manufacturing and engineering departments are located.

Registered Patent Attorney

Patent Information Book, without obligation. Pat. Atty. & Advisor Navy Dept. 1930-47. Assoc. Examiner Pat. Off. 1922-29 Gustav Miller, Patent Lawyer, 44BW2-Warner Bldg., Wash 4, D.C.

BUSINESS OPPORTUNITIES

Why make Money on Your Losses in Tooling Them Up? Our firm price, guaranteed bid for processing to your equipment, tool design, tool build, tool tryout, and building of prototypes can assure your profit. Top management executives are invited to write for a copy of "The Mechanics Plan." Mechanics Incorporated, Bridgeport, Connecticut, Operating Nationally.

Wanted Contract Manufacturer for small electric appliance. Nationally advertised company desires contract manufacturer to produce small electric appliance for home. Appliance already designed. Advise production and engineering facilities. Box BO-2299, Business Week.

CONTRACT WORK WANTED

For Quality in precision parts and assemblies obtainable only by engineering detailing of methods, call on SPECIAL. Our integrated unit of 150 engineers, toolmakers, precision machinists and inspectors—specializing in complete precision assemblies—operates with large company procedures. Since 1910, we have been serving the country's largest manufacturers in aircraft, business machines, electronics and other industries, by assuming undivided responsibility for accurate, economical and on-schedule work. Write: Special Machine Tool Engineering Works, 136 Lafayette Street, New York 13, N. Y. Telephone: WORTH 6-1133.

Canadian Manufacturer located in centre of Industrial Ontario, with branch distribution across Canada, has capacity for additional lines or contract work on sheet metal, light plate and machine production. Also have well-equipped, wood-working department with open capacity. If desirous of entering Canadian market, advise us of your needs. CWW-2286, Business Week.

California facilities available for manufacturing your product. Manufacturing, assembly, engineering and technical supervision, and warehouse space. On lease or contract, 180,000 square feet. Hendy Mfg. Corp. P. O. Box 217, Indio, Calif.

PLANTS—PROPERTIES

Calif. Plants for sale or lease—new Industrial survey gives facts on plants and on facilities available for manufacture, assembly, packaging, warehousing in Alameda County. Write for descriptive Data Sheet. No cost. Strictly confidential. Metropolitan Oakland Area Committee (a non-profit organization), Suite 22, 427-13th St., Oakland 12, Calif.

MISCELLANEOUS

Courses

Operations Research, Cybernetics, Symbolic Logic, Statistics, 22 other courses; individuals (\$22 to \$5), study groups (as low as \$8). We have students in 48 states, countries. Write for free announcement. Edmund C. Berkeley Associates, 815 Washington, R.R. Newtonville, Mass.

ADVERTISERS IN THIS ISSUE

Business Week—April 10, 1954

ADMIRAL CORP.	12	EXECUTONE, INC.	133	N. Y. STATE DEPT. OF COMMERCE	110
Agency—Tatham-Laird, Inc.		Agency—The Joseph Kats Co.		Agency—Batten, Barton, Durstine & Osborn, Inc.	
THE ALVEY-FERGUSON CO.	99	FAULTLESS CASTER CORP.	56	THE OHIO CRANKSHAFT CO.	67
Agency—Associated Advertising Agency		Agency—Perini-Paus Co.		Agency—Carr, Gomm & Co., Inc.	
AMERICAN CYANAMID CO.	96	FELT & TARRANT MFG. CO.	82	PATERSON PARCHMENT PAPER CO.	132
Agency—H. C. Wills, Inc.		Agency—N. W. Ayer & Son, Inc.		Agency—Platt, Zachary & Sutton, Inc.	
AMERICAN MUTUAL LIABILITY INSURANCE CO.	33	FIELD & FLINT CO.	158	PEERLESS PUMP DIV., FOOD MACHINERY & CHEMICAL CORP.	114
Agency—McGraw-Erickson, Inc.		Agency—Bachschmid-Lewis, Inc.		Agency—The McCarty Co.	
AMERICAN TELEPHONE & TELEGRAPH CO.	1	FORT HOWARD PAPER CO.	124	PERMAGEL TAPE CORP.	120
Agency—N. W. Ayer & Son, Inc.		Agency—Baker, Johnson & Dickinson Ads.		Agency—The Aitkin-Kynett Co.	
APCO CORP.	48	FORT WAYNE CORRUGATED PAPER CO.	83	PHOTOART CORP.	128
Agency—Watkins-Brown, Assoc.		Agency—Doremus & Co.		Agency—Kaufman & Gilbert, Inc.	
ANACONDA COPPER MINING CO. & SUB. COMPANIES	4-5	FRICK CO.	47	PITTSBURGH PLATE GLASS CO.	153
Agency—Kenyon & Eckhardt, Inc.		Agency—Weymouth Adv. Agency		Agency—Maxon, Inc.	
APSCO PRODUCTS, INC.	138	FRIDEN CALCULATING MACHINE CO.	187	PITTSBURGH STEEL CO.	58-59
Agency—Julian R. Bezel & Assoc.		Agency—J. Walter Thompson Co.		Agency—Bond & Starr, Inc.	
ARMCO STEEL CORP.	85	GANNETT, FLEMING, CORDORO & CARPENTER, INC.	83	Agency—Hoyle, Williams & Cleary, Inc.	
Agency—H. W. Ayer & Son, Inc.		Agency—The Aitkin-Kynett Co.		PORTLAND CEMENT ASSN.	167
ARMSTRONG CORK CO.	189	GENERAL CABLE CORP.	181	Agency—Gray & Rogers	
Agency—Batten, Barton, Durstine & Osborn, Inc.		Agency—Hicks & Gretz, Inc.		RAYBESTOS-MANHATTAN, INC.	115
ATLAS POWDER CO.	18	GENERAL MOTORS CORP.	181	Agency—Gray & Rogers	
Agency—The Aitkin-Kynett Co.		(CHEVROLET MOTORS DIV.)	76-77	RADIO CORPORATION OF AMERICA.	75
AUTOMATIC TRANSPORTATION CO.	182	Agency—Campbell-Ewald Co.		Agency—J. Walter Thompson Co.	
Agency—Ruthrauff & Ryan, Inc.		THE B. F. GOODRICH CHEMICAL CO.	4th Cover	RAPIDS-STANDARD CO., INC.	10
AUTOMOTIVE & AIRCRAFT DIV.		Agency—The Griswold-Eshleman Co.		Agency—Wesley Aver & Assoc., Inc.	
AVCO MFG. CORP. (CROSBY DIV.).	144	GOODYEAR TIRE & RUBBER CO., INC.	2nd Cover	RAYBESTOS-MANHATTAN, INC.	115
Agency—Benton & Bowles, Inc.		Agency—Kudner Agency, Inc.		Agency—Gray & Rogers	
BALTIMORE & OHIO RAILROAD.	135	HILTON HOTELS CORP.	88	REM-CRU TITANIUM, INC.	141
Agency—The Richard A. Foley Adv. Agency, Inc.		Agency—Needham & Gromann, Inc.		Agency—G. M. Basford Co.	
BANKERS BLDG. CO.	106	HOUSTON PIPE LINE CO.	142	REPUBLIC STEEL CORP.	116-117
Agency—Christopher, Williams & Bridges		Agency—Wilkinson-Schwets & Tipe, Inc.		Agency—Medmorn & Fessmire, Inc.	
BELDEN MFG. CO.	8	INLAND STEEL CO.	13	REVERE COPPER & BRASS, INC.	79
Agency—The Fischhoff Adv. Agency, Inc.		Agency—Weiss & Geller, Inc.		Agency—St. Gobain Glass, Inc.	
BENDIX AVIATION CORP.	84-85	INTERNATIONAL NICKEL CO., INC.	187	ROBERTS & MEERS, INC.	169
Agency—MacManus, John & Adams, Inc.		Agency—Marschalk & Pratt Co., Inc.		Agency—Wavin, Wasey & Co., Ltd.	
BUTINOMINOUS COAL INSTITUTE.	89	INTERNATIONAL RAILWAY CAR CO.	164	ROCKWELL MFG. CO.	
Agency—Benton & Bowles, Inc.		Agency—Brown & Block, Inc.		Agency—Nordstrom Valve Div.	140
BRAD FOOTE GEAR WORKS, INC.	91	INVINCIBLE METAL FURNITURE CO.	184	Agency—Marsteller, Gebhard & Reed, Inc.	
Agency—Reincke, Meyer & Finn, Inc.		Agency—Klau-Van Pietersen-Dunlap, Inc.		Agency—Charles L. Rumrill & Co., Inc.	130
BRAINARD STEEL CO.	45	JESSOP STEEL CO.	74	ROYAL METAL MFG. CO.	60
Agency—The Griswold-Eshleman Co.		Agency—Bond & Starr, Inc.		Agency—Kudner & Kudner, Inc.	
BRISTOL BRASS CORP.	147	JOHNS-MANVILLE CORP.	113	SCOTT PAPER CO.	182
Agency—Sutherland-Abbott		Agency—J. Walter Thompson Co.		Agency—J. Walter Thompson Co.	
BRODERICK & BASCOM ROPE CO.	188	KEARNEY & TRECKER CORP.	93	Agency—O. S. Tyson & Co., Inc.	118
Agency—Hoiser Advertising, Inc.		Agency—Klau-Van Pietersen-Dunlap, Inc.		THE SUBSCRIBER CORP.	54
CHARLES BRUNING CO., INC.	171	KELLOGG SWITCHBOARD & SUPPLY CO.	62	Agency—H. B. Humphrey, Alley & Richards, Inc.	
Agency—Kantor & Sons Adv. Co., Inc.		Agency—Glen Jordan-Roestsel, Inc.		S. C. RESEARCH, PLANNING AND DEVELOPMENT BOARD	87
BULL ENGINEERING CO.	54	KELLY SPRINGFIELD TIRE CO.	131	Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Hicks & Gretz, Inc.		Agency—Compton Adv., Inc.		SPERRY GYROSCOPE CO.	49
BUFFALO FORCE CO.	44	KELSEY HAYES WHEEL CO.	28	Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Melvin P. Hall Adv. Agency, Inc.		Agency—Zimmer, Keller & Calvert, Inc.		STROMBERG TIME CORP.	66
BULLARD CO.	49	KEYSTONE STEEL & WIRE CO.	46	Agency—Harry Berk	
Agency—Park City Adv. Agency, Inc.		Agency—Maez Adv. Agency, Inc.		THE STURGIS POSTURE CHAIR CO.	92
BURROUGHS CORP.	183	KNOTT HOTELS (NEW WESTON).	164	Agency—Black Adv. Agency	
Agency—Campbell-Ewald Co.		Agency—Robert Conahay, Inc.		SUN OIL CO.	163
BUTLER MANUFACTURING CO.	146	KOHLER CO.	187	Agency—Gray & Rogers	
Agency—Aubrey, Finlay, Marley & Hodgson, Inc.		Agency—Kudner, Williams & Cleary, Inc.		SUNRAY OIL CORP.	78
CENTRAL OF GEORGIA RAILWAY.	61	THE LORD BALTIMORE HOTEL.	146	Agency—Watts, Payne Adv., Inc.	
Agency—Tucker Wayne & Co.		Agency—Emerson Chace Adv. Agency		THE TEXAS CO.	24
CENTURY ELECTRIC CO.	185	LORD & BURNETT CO.	110	Agency—Cunningham & Walsh, Inc.	
Agency—Oakleigh R. French & Assoc.		Agency—Emerson Chace Adv. Agency		THILMANY PULP & PAPER CO.	94
CHESSAPEAKE & OHIO RAILWAY CO.	6-7	LYRA ENGINEERING CORP.	168	Agency—Jack C. Wemple	
Agency—Robert Conahay, Inc.		Agency—Storm & Klein, Inc.		TIMKEN ROLLER BEARING CO.	173
CHICAGO RAWHIDE MFG. CO.	64	LYON METAL PRODUCTS, INC.	184	Agency—Batten, Barton, Durstine & Osborn, Inc.	
Agency—Wesley Aver & Assoc., Inc.		Agency—Reincke, Meyer & Finn, Inc.		TOKHEIM CORP.	121
CHICOPEE MILLS, INC.	90	MARBLE INSTITUTE OF AMERICA, INC.	108	Agency—Jones & Taylor and Assoc.	
Agency—Lomax & Nease, Inc.		Agency—Moore & Co., Inc.		THE TORRINGTON CO.	165
CLARK EQUIPMENT CO.		MCGRAW-HILL BOOK CO., INC.	172	Agency—Hoover, Yates & Mattoon, Inc.	
CONSTRUCTION MACHINERY DIV.	162	Agency—Mead Corp.	119	Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Marsteller, Gebhard & Reed, Inc.		Agency—Gray & Rogers		TOWNSEND CO.	58-59
CLUES (CLASSIFIED ADVERTISING).	190	METAL OFFICE FURNITURE CO.	125	Agency—Bond & Starr, Inc.	
Agency—Combustion Engineering, Inc.		Agency—Wesley Aver & Assoc., Inc.		TRANS WORLD AIRLINES, INC.	151
CONTINENTAL MOTORS CORP.	112	METALS & CONTROLS CORP.		Agency—Batten, Barton, Durstine & Osborn, Inc.	
Agency—Cummings & Hopkins		SPENCER THERMOSTAT DIV.	131	TRAVELERS INSURANCE CO.	174
CORNING GLASS WORKS.	78	Agency—Sutherland-Abbott		Agency—Young & Rubicam, Inc.	
Agency—Charles L. Rumrill & Co., Inc.		Agency—Young & Rubicam, Inc.		UNDERWOOD CORP.	14
CRANE CO.	71	METROPOLITAN LIFE INS. CO.	11	Agency—Marshall & Pratt Co., Inc.	
Agency—The Buchen Co.		Agency—Young & Rubicam, Inc.		U. S. FIDELITY & GUARANTY CO.	188
DESIGNERS FOR INDUSTRY.	184	METROPOLITAN OAKLAND AREA CO.	88	Agency—Van Sant, Dugdale & Co., Inc.	
Agency—Fuller & Smith & Ross, Inc.		Agency—Young & Rubicam, Inc.		U. S. PLYWOOD CORP.	88
DOUGLAS FIR PLYWOOD ASSOC.	146	MINNESOTA MINING & MFG. CO.	38	Agency—Kenyon & Eckhardt, Inc.	
Agency—The Comdon Co.		Agency—MacManus, John & Adams, Inc.		U. S. STEEL CORP.	90
DOW CORNING CORP.	189	MONSANTO CHEMICAL CO.	63	Agency—Batten, Barton, Durstine & Osborn, Inc.	
Agency—Don Wagnitz		Agency—Gardner Adv. Co.		VEEDER-ROOT, INC.	2
DOWELL, INC.	100	MOORE BUSINESS FORMS, INC.	38	Agency—Sutherland-Abbott	
Agency—MacManus, John & Adams, Inc.		Agency—N. W. Ayer & Son, Inc.		VINCO CORP.	182
E. I. du PONT de NEMOURS & CO.	21, 128-129	NATIONAL CITY BANK OF NEW YORK.	16	Agency—Burk Hartlett Co., Inc.	
Agency—Batten, Barton, Durstine & Osborn, Inc.		Agency—Batten, Barton, Durstine & Osborn, Inc.		WARREN WEBSTER & CO.	3
EASTERN CORP.	186	NEW DEPARTURE DIV.	88	Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Sutherland-Abbott		Agency—Hoover, Yates & Mattoon, Inc.		WESTINGHOUSE AIR BRAKE COMPANY.	90-97
ELLIOTT ADDRESSING MACHINE CO.	188	GENERAL MOTORS CORP.	9	Agency—Hoover, Yates & Mattoon, Inc.	
Agency—H. B. Humphrey, Alley & Richards, Inc.		Agency—Hoover, Yates & Mattoon, Inc.		WESTINGHOUSE ELECTRIC CORP. (AIR CONDITIONING)	16
EMERSON ELECTRIC MFG. CO.	177	Agency—Doremus & Co.		Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Winifred Brandon Co.		NATIONAL DISTILLERS PRODUCTS CORP.	43	WESTINGHOUSE ELECTRIC CORP. (MICARTA DIV.)	148
EMERY AIR FREIGHT CORP.	180	Agency—Doremus & Co.		Agency—Hoover, Yates & Mattoon, Inc.	
Agency—J. M. Mathes, Inc.		NATIONAL TRUCK LEASING SYSTEM.	188	WESTINGHOUSE ELECTRIC CORP. (STURTEVANT DIV.)	72
THOMAS EMERY'S SONS, INC.	106	Agency—The Charles Brunelle Co.		Agency—Hoover, Yates & Mattoon, Inc.	
Agency—Ruthrauff & Ryan, Inc.		GENERAL MOTORS CORP.	9	WOLVERINE TUBE DIV.	
EMHART MFG. CO.	138-139	Agency—McGraw-Erickson, Inc.		Agency—Calumet & Hecla, Inc.	42
Agency—The Charles Brunelle Co.		Agency—The Aitkin-Kynett Co.		WORTHINGTON CORP.	137
ENJAY CO., INC.	99	Agency—McGraw-Erickson, Inc.		Agency—James Thomas Chirurg Co., Inc.	
Agency—McGraw-Erickson, Inc.		Agency—The Aitkin-Kynett Co.		ZIPPO MFG. CO.	99
ESTERBROOK PEN CO.	81	Agency—The Aitkin-Kynett Co.		Agency—N. W. Ayer & Son, Inc.	

Shooting for the Possible

If the art of politics is to promote the common good by shooting for what's possible and not for what's perfect, President Eisenhower deserves high marks as a political practitioner for the message on foreign economic policy he sent to Congress last week.

The President is not asking Congress to carry out a revolution in American foreign economic policy. His program, which embodies all the main recommendations of the Randall Commission Report, follows a wise precept included in that report: "We must not expect to repeal history." But, just as surely, the Eisenhower program recognizes that times have changed and that a protectionist policy that was suitable to this country in the 19th Century no longer fits our needs.

What Eisenhower wants is a further gradual broadening of the liberal trade policy launched in 1934 by Cordell Hull. Most important, he is asking Congress to: (1) extend the Reciprocal Trade Agreements Act for three years with additional tariff-cutting authority for the President; (2) amend Buy American legislation so that foreigners can bid on equal terms with Americans; (3) simplify customs regulations so that imports are not impeded by red tape; and (4) grant tax concessions to Americans investing abroad.

For Two-Way Trade

The President maintains, rightly we believe, that this program must be adopted if there is to be a high level of two-way trade—a prime necessity if the U.S. is to trim down foreign aid and still not cut itself off from the rest of the free world.

Many Republicans, including the top men on the key committees in Congress as well as a number of businessmen, are bitterly opposed to the President's program just as they were to the Randall recommendations. They feel that the proposals for increasing our imports would be a threat to American industry, management, and labor alike.

On the other hand, you find some businessmen and not a few economists who believe that the Randall-Eisenhower program doesn't go far enough in the direction of free trade. This was the majority view at a conference of economists held at Princeton. Among other things, this group lamented the lack of emphasis "on the possibility of American consumers and producers standing to gain from freer trade and larger imports."

With this lament we have no quarrel. The American economy unquestionably stands to gain from a larger flow of two-way trade. But the slashing of tariffs—which is the battle cry of most free traders—doesn't make sense economically or politically. And there's no reason that foreign governments or our own enthusiasts should expect this from the Eisenhower Administration.

The important thing is that we should have a settled policy of trying constantly to make progress toward a greater measure of freedom in international trade. And that's exactly the kind of policy the Administration is now asking Congress to adopt.

The President is to be congratulated for taking this sensible, middle of the road approach. Because it makes political and economic sense farseeing businessmen should rally behind it. It is precisely the program that Congress should—and must—enact into law this session.

It Pays to Be Safe

American business seldom realizes that it has a high stake in safe-driving campaigns, such as that going on right now. Yet scarcely a company doesn't have salesmen, truck drivers, or employees with cars. The high accident rate can involve them—and the company.

We are happy to note that one big corporation, E. I. du Pont de Nemours & Co., has approached the safe driving problem seriously by instituting voluntary tests at its experimental station. The program has already begun to pay off—there have been no accidents among the station's personnel since December. Last year a total of nine accidents cost 132 lost working-days, \$3,300 in wages—and unmeasured human grief and worry.

Noble as it is, du Pont's efforts alone won't change things much. By Dec. 31, we will still be able to add up a highway toll of about 38,000 highway deaths in 1954. With dreary regularity, that grim figure has shown up for several years running.

The main cause of this senseless killing is senseless people. One top authority on driver education says the number of unfit drivers has shown a frightening increase, that 15-million of the 64-million licensed U.S. drivers couldn't pass an adequate driving test.

He points out that no state has an examination to screen out poor drivers. One result is that even people drawing checks for being blind are driving. On top of that, there's a far greater chance than you think, he claims, of your being right if you assume the driver in front of you is a psychiatric case, if not plumb crazy.

Most drivers forget, too, that it's sensible to be courteous. That's why courtesy is the theme right now of a national campaign by three safety organizations. Ned H. Dearborn, president of the National Safety Council and one of the sponsors, says this: "The person who drives by the Golden Rule will never have a serious accident. Safe driving is a moral responsibility."

Aside from moral values, courtesy is a part of plain common sense. Using his head is the driver's greatest safeguard. And that is strictly up to him. For, as one automobile designer puts it: "You can engineer almost anything into an automobile—except common sense."

New Harvey aluminum alloy 66S will reduce your costs

high-strength-low-cost-ratio

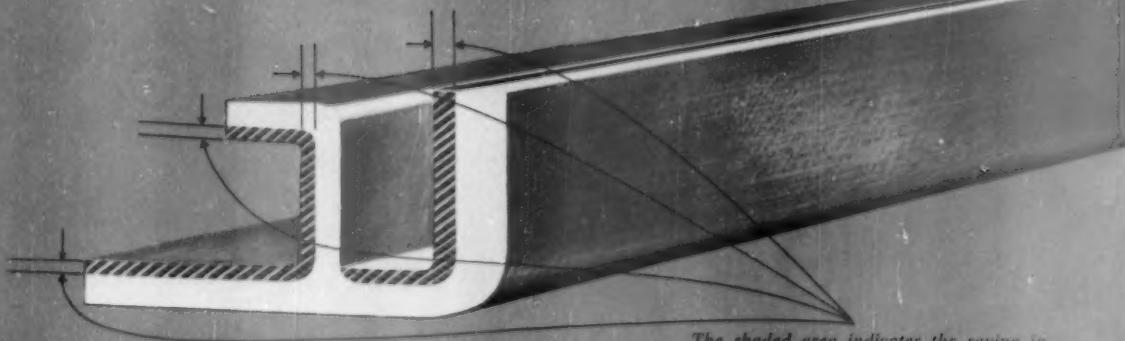
means that Harvey metallurgists have combined the essential qualities of many ideal structural alloys into a single new aluminum alloy—66S. This general purpose alloy is bringing real economy to many industries. It combines the high strength of 24S and the good corrosion resistance, weldability and economy of 61S.

Alert aluminum fabricators can now use 66S to reduce material costs, cut weight without sacrificing strength, and lower fabricating costs. You can reduce your costs at Harvey Aluminum... tooling service charges are nominal, and Harvey prepays the freight to your dock. Send for your Bulletin on 66S today.



here's how you save

The high yield strength of 66S permits you to reduce the cross section of structural members. This means real dollar savings in material costs. The extrusion below was made of 61S. By using the high yield strength of 66S its cross section is reduced as shown. The saving in material amounts to approximately 26%. Saving in cost, 21%.



The shaded area indicates the saving in material made possible by using 66S.

MAKING THE MOST OF ALUMINUM—FOR EVERYONE

HARVEY Aluminum

HARVEY ALUMINUM SALES, INC.
TORRANCE—LOS ANGELES, CALIFORNIA
BRANCH OFFICES IN PRINCIPAL CITIES

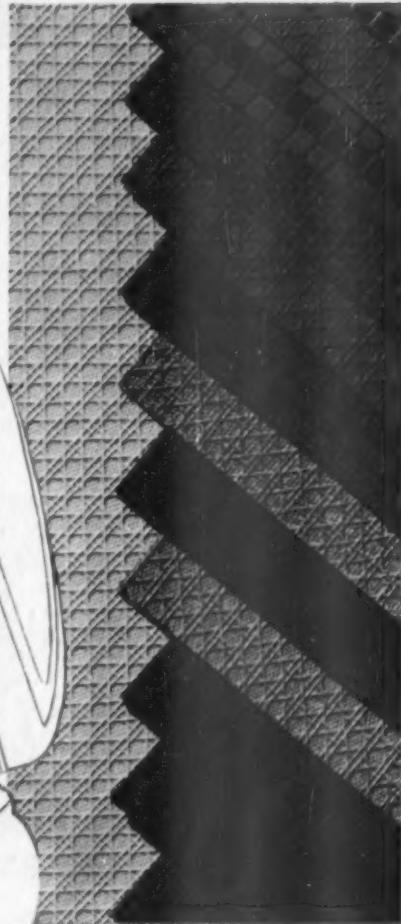


The men at Harvey Aluminum are dedicated to the idea of improving your product while reducing your costs. And remember, we prepay the freight to your plant.

An independent producer of aluminum extrusions in all alloys and all sizes; special extrusions, press forgings, bar stock, forging stock, tubes, Impact extrusions, aluminum screw machine products and related products.

Another new development using

B. F. Goodrich Chemical *raw materials*



B. F. Goodrich Chemical Co. does not make these floor mats. We supply only the Geon polyvinyl latex.

There's color afoot for colorful cars!

IT had to come—textured floor mats in color to match the brilliant color of today's cars.

The manufacturer of these floor mats coats rubber with a special formulation of Geon polyvinyl latex, and at one stroke offers wide color range and extra wear—up to 4000% more! On top of that, the motorist gets easier cleaning and high oil-and-grease-resistance. No wonder so many new cars are equipped with

this advanced floor mat made possible by one of the many Geon polyvinyl materials.

If this new sales-maker gives you an idea for developing or improving products with Geon materials, check with us—for Geon is used in many products from wire insulation and durable flooring to upholstery, rigid tubing and sponge.

We'll help you select the Geon material best suited to your needs;

Write Dept. A-4, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.



GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON colors